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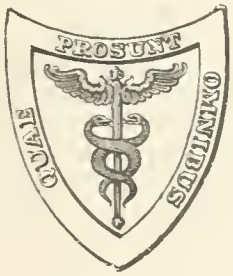

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ORIGINAL ARTICLES.

NATIONAL ASSOCIATION FOR THE STUDY AND PREVENTION OF TUBERCULOSIS.—PRESIDENT'S ADDRESS.

BY EDWARD L. TRUDEAU, M.D.,

OF SARANAC LAKE, N. Y.

I CANNOT find words suitably to express my appreciation of the great honor you have done me in electing me as President of this Association. While struggling for so many years alone and in a remote region with the tuberculosis problem about me, my wildest fancy never pictured the possibility of such a widespread and earnest movement as this, and much less that I would ever be accorded the inestimable privilege of standing before such a gathering as I see here to-day as its leader. That I have been permitted to do so will be to me a satisfaction which will last as long as life does.

This, the first regular meeting of the National Association for the Study and Prevention of Tuberculosis, marks an epoch in the history of the struggle against this disease in America. It means that through knowledge has come responsibility and hope, and through both, action. The "Great White Plague" has ever been so gigantic and hopeless a problem that until recent years men have accepted the holocaust of human life which it has ever claimed, and the terrible suffering it entails on humanity, as an inevitable decree of fate, and have either looked on with oriental fatalism or turned their heads and passed by on the other side with a hopelessness born of despair and of ignorance as to the etiology of the disease.

For many years the pathologist labored faithfully and unremittingly, but unsuccessfully, to solve the problem of tuberculosis: but by the application of the experimental method, and with the birth of the new science of bacteriology, Villemin, Koch, Cornet and others, threw a light on the etiology of tuberculosis which, little by little, has inspired men with new hope and led them to the conviction that since tuberculosis is a communicable disease and its etiological factor has been discovered, it is also to a great extent a preventable one.

The realization of this truth, so vital to mankind, has come but slowly, and for the past twenty years workers in this field have struggled long and patiently to demonstrate the validity of this new hope, and to accumulate indubitable evidence as to the practical efficacy of preventive measures, while others, by improved methods of diagnosis and treatment, have demonstrated the possibility of a much earlier detection of the disease and its curability when treated by the open-air method.

I congratulate those of you who have so many years been engaged in this arduous task that your labors have not been in vain, and that at last tuberculosis is recognized generally as communicable, preventable, and, in its earlier stages and more favorable types, curable.

To this demonstration the National Association for the Study and Prevention of Tuberculosis owes its existence, and its moving force today is the hopefulness based on facts garnered in this field by individual workers during the past twenty years. This newly gained knowledge needs but to be applied in order to insure success, and it has long been evident that the efforts of individual workers can be of little avail in meeting so vast a problem—one which ten years ago would have been thought beyond the power of man—namely, the reduction of the death-rate from tuberculosis over all the United States of America. To accomplish this the National Association should be something more than a medical society devoted to the study of tuberculosis. Its watchwords should be, Organization and Cooperation; an organization so perfect and a cooperation so broad that, through education, it will bind together for the attainment of a common aim the laity, the profession, the State, and the Nation.

Abroad the value of organization and cooperation has already been recognized, and the modern crusade against tuberculosis finds European nations not as units each following its own independent path, but banded together in an International Association, with a Central Bureau in Berlin, issuing its monthly publications in three languages, and bringing together at its meetings, held at stated intervals, the best minds of medical and related professions of all countries for deliberation and consultation.

Tardily though it be, with us a beginning has been made. The United States is no longer without representation among the nations in their combined struggle with the Great White Plague, and this Association is now part of that vast international movement to stamp out tuberculosis which has been steadily spreading over the world. Organization and cooperation are the keynotes of the age, and the two main factors on which the success of the vast undertakings of modern times has depended. On their thorough application and broadest interpretation depends the degree of success the National Association will achieve. The first problem before it is to combine and direct the scattered efforts of individual workers and existing associations, and to extend and expand the field of these ef-

forts. The precise lines along which this great Society will develop its work rests with you and the future.

One of the first steps to be initiated would seem the adoption of a plan of organization that would bring each State, by means of one or more representatives, lay and professional, in touch with the National Association. To these representatives would be delegated the carrying out of the antituberculosis crusade in their respective States along the lines recommended by the National Association, making at the annual meeting their report of the progress accomplished. Through a publication of its own the National Association should keep its members in touch with one another's work and methods, and with any advances made in meeting the sociological problems which stand in so important a relation to tuberculosis, as well as in perfecting its municipal control and advancing its study and methods of treatment.

The first and greatest need is education. Education of the people, and through them education of the State. It is evident that if every man and woman in the United States were familiar with the main facts relating to the manner in which tuberculosis is communicated and the simple measures necessary for their protection, not only we might reasonably expect as a direct result of this knowledge a great diminution in the death-rate of the disease, but the people would soon demand and easily obtain effective legislation for its prevention and control.

When a State has once become well educated, and not before, will the other requisites necessary to the control of the disease be forthcoming. These requisites are briefly, a higher standard of public hygiene and improved conditions of life for the masses; sanitary laws embodying the municipal control of tuberculosis as it is now understood; the segregation of the tuberculous in public institutions and prisons; the establishment of sanatoriums for incipient cases; hospitals for advanced and hopeless ones who cannot be cared for safely at their homes; specially organized dispensaries, laboratories for research, etc.

Education should begin by teaching in the public schools the main facts relating to the transmission of tuberculosis, insisting in such teachings on the value of hygienic measures of prevention, and dwelling as little as possible on the details of the bacteriology of the disease, which would tend to produce in imaginative young minds exaggerated and fantastic impressions of the dangers of infection; education of the masses by distribution of suitable literature, by lectures to trades unions and various organized bodies, by free museums, tuberculosis exhibitions, and through the medium of the public press and periodical literature. Education, by teaching just where the danger lies and the simple measures necessary to avoid it will tend to quiet and control the unreasoning and ignorant terror of infection which often works such hardship and injustice to the consumptive. Early detection of the disease is the first requisite for success in its treatment, and it is through education alone that incipient cases will be induced to seek advice early and to make at the right time the sacrifices necessary to bring about their recovery.

Education will help to crush the vampire of quackery which preys ever on the misfortunes and ignorance of the poor consumptive, appealing with devilish ingenuity, through spacious advertisements of mysterious specifics and sure cures, to his credulity and hope, masquerading under the guise of science and even of philanthropy, in order to wring from him his small savings, and then casting him off, when these have been exhausted and his disease is well advanced, doomed to a lingering death, helpless, hopeless, and a heavy burden on the overtaxed resources of a charitable community. May the time soon come when the National Association will be in a position to put its heel on the demon of quackery, not only by educating its victims, but by applying its large resources and influence to bring the offenders to justice.

Educational measures should not be confined to the public, but, along different lines, extended to the profession as well. Medical schools should be urged to give special didactic and clinical instruction in advanced methods of making an early diagnosis. In graduating from most medical schools the young practitioner is too apt to carry with him the picture of tuberculosis as he has seen it in the advanced cases usually shown at clinics and dispensaries. Incipient tuberculosis he has not been taught to recognize. On the general practitioner and the dispensary physician rests the great responsibility of detecting the disease in its incipiency, for it is to them and not to the specialist that the patient first applies. Not by lectures alone, but by clinical instruction as well, should medical students be taught how to detect the varied and insidious onset of incipient tuberculosis, impressing on them the curability of the disease in its earlier stages, and for this reason the responsibility of making a diagnosis before the classical symptoms of pulmonary consumption develop. The various sanatoriums offer such rich opportunities for clinical instruction in incipient tuberculosis, early diagnosis, and treatment, that summer courses could, with great advantage, be given at these institutions.

The value of the tuberculin test when applied to cases where a positive diagnosis cannot be made by ordinary methods has not yet been fully recognized, and in my experience its unreliability and dangers have been much exaggerated. A method which enables the physician to reach a positive conclusion as to the presence or absence of tuberculosis long before it can be done by ordinary clinical methods is of such vital importance in all attempts at curing the disease that it is to be hoped the National Association will be a me-

dium through which a more exact knowledge of its scope, its limitations, and its real value, may be reached.

The practical application of knowledge already gained as to the measures briefly touched upon, and which represent prevention, is one of the two great responsibilities of the National Association. The other is the extension and advancement of the study of tuberculosis in this country. The United States, at any rate so far as tuberculosis is concerned, should not much longer justly lie under the imputation of being "one of the largest borrowers in the scientific markets of the world." Already everything points to an awakening to the need and possibilities of original research in this country. Within the past five years the Carnegie Institute, the Rockefeller Institute, and the Phipps Institute, have been founded and generously endowed. Many laboratories have been opened in connection with colleges and hospitals, and journals and societies devoted to original research have sprung into life, so that before many years American Science will have won its place in the world's scientific advances in the field of medical research. The scientific study of tuberculosis, however, offers so broad a field, and one requiring observations extending over such long periods of time, that special permanent endowments solely for researches in tuberculosis, which would enable experimentation in this field to be carried on continuously through a number of years, are greatly needed.

In time the sanatoria can furnish, from carefully kept records extending over many years, valuable data hitherto unattainable, bearing on the history, varied clinical manifestations and treatment of the disease, and improvement in methods of municipal control will steadily develop along the lines already so wisely instituted.

But it is mainly to the laboratory research work that we must look for the solution of many of the as yet unsolved problems of tuberculosis, and for advance in our methods of prevention and treatment. The study of different sources of infection; of the great variations of virulence in tubercle bacilli and how brought about; of the different species of the tubercle bacillus and of related bacteria; their relation to each other and to the disease; the chemistry of their toxins; and, above all, the mechanism of natural immunity and the possibility of producing artificial immunity to the germ and to its toxins; the mechanism of such an artificially induced resistance, are but a few of the subjects of the utmost interest at present, on which the laboratory alone can throw much needed light.

Although artificial immunization against tuberculosis has hitherto been looked upon as a dream never likely to be realized, during the past ten years a great deal has been added to our knowledge of the mechanism of natural and acquired immunity against infectious diseases, and appreciable advances have been made in producing in animals a relative degree of artificial immunity against tuberculosis. If further researches are ever to result in some safe method of inoculation that will produce artificial immunity, or even greatly increased resistance to tuberculosis infection, it is to the laboratory that we must look for such an achievement.

Along these lines, laid down by its founders, and which I have briefly touched upon, the National Association for the Study and Prevention of Tuberculosis bids fair to work out its destiny.

On the spirit of a work like this depends its life and success. The motive which has brought you together, and the spirit which has made possible the existence of the National Association, is to my mind the best guarantee of its success; for its work represents the highest type of unselfish human endeavor and the highest aim of a noble profession; namely, the struggle for the existence of others—a struggle which will not be rewarded even by the gratitude of those whose lives you will save, for they will never even know that they have been saved.

If the National Association succeeds in coordinating and binding together in one sustained and well-directed effort the scattered energies which have sprung into life all over this great country, if it can secure the cooperation of the sociologist, the legislator and the philanthropist, if its organization is complete and its members have become imbued with the greater meaning and true spirit of cooperation—a cooperation ever ready to sacrifice selfish aims to the success of a great cause—a cooperation which to the athlete means team work and to the soldier discipline—it cannot but prove a powerful instrument in the struggle against tuberculosis in this country.

It has been said—"the degree of civilization of a people will in time be indicated by the figures of its death-rate." If this be so the National Association has indeed a great responsibility; one which it nevertheless seems well fitted to assume.

THE EDUCATIONAL TREATMENT OF "TICS."[1]

BY B. SACHS, M.D.,

OF NEW YORK;

ALIENIST AND NEUROLOGIST TO BELLEVUE HOSPITAL; NEUROLOGIST MT. SINAI HOSPITAL, NEW YORK.

IT is my purpose to call attention to some recent views regarding the effective treatment of tics. The change in therapeutic principles has been brought about largely by a change in the conception of the disorders in question, and we cannot discuss the former intelligently or satisfactorily without dwelling for a very few minutes upon the essential nature of "tics" or "habit-spasms."

Everyone who has been called upon to classify functional disordered movements has found great difficulty in distinguishing between "tics," habit-chorea, general choreiform movements, myoclonia, paramyoclonus and the like. The subject is complicated by the suspicion of hysteria, which often arises; then again "reflex

[1] Read before the N. Y. Academy of Medicine, April 20, 1905.

neuroses" have been made to include tics and many choreiform movements, and yet none of these is ever truly reflex in origin. If the entire series of reflex neuroses were eliminated from neurological text-books, neurological science would be none the worse for it. As a matter of fact, there are, to my mind, no reflex motor neuroses in the physiological sense, *i.e.*, a peripheral sensory irritation carried centripetally and resulting in a centrifugal motor impulse.

To clear the atmosphere, it may also be stated at the outset that tic douloureux is an old-fashioned designation—an unfortunate misnomer—and has nothing whatever to do with true tics; even the facial spasm observed particularly in the senile period does not belong to the class of cases to which we are to give some thought. The advance in our knowledge of habit-movements is due chiefly to the French school, beginning with Charcot and Noir and ending with Brissaud, and his pupils Meige and Feindel, who have written an excellent monograph of over 600 pages on tics and their treatment. The subject was discussed at the Twelfth Congress of French Alienists and Neurologists in 1902; Noguès, Grasset, Pitres, Ballet, Cruchet, Crocq and others giving their views with all the accuracy and picturesqueness of description so characteristic of French clinical writers. There can be no doubt, on the other hand, that the older writers in Germany, France and England, Friedreich, Trousseau and Gowers, for instance, recognized some of the peculiar features of this special group of disordered movements, and Oppenheim had anticipated some of the conclusions reached by the physicians of La Salpetrière. In this country Osler has at various times attempted to classify and to describe the various forms of tics, and Dana and myself have also struggled with the subject.

According to our present-day conception, tic is an involuntary movement which can for a time be controlled, or even inhibited, by the will. We have had to borrow the term from the French, as the Germans have also done. The spirit of our language will not sanction the adoption of some of the French derivatives. The victim of tic is called a "tiqueur." If we were to publish the records of a "ticker," as the French have, we might be accused of irrelevant, if not unscientific studies. The only proper English equivalent is habit movements or habit-spasm, but the French have endeavored to differentiate between tic and spasm and are inclined to discard the latter term.

Brissaud, for instance, claims that a spasm is "a motor reaction (say movement) resulting from irritation of some part of the spinal or bulbo-spinal reflex arc. The irritation which excites this spasm is produced by some morbid cause, and may be either peripheral or cortical." In this sense spasm is a true convulsive action, a muscular contraction rather than a movement.

Tic is a coordinated or systematized movement with a definite object in view, repeated frequently and in exaggerated fashion. Frequent repetition of such movements creates the habit, and the habit once established, the movements become automatic.

Meige has made a fine point in this discussion by showing that tics are concerned with functional movements and chiefly with such which are partly reflex and partly subject to the will (habit winking, habit cough). Most of these tics have been purely reflex movements at the start; the reflex actions are voluntarily repeated and through frequent repetition become automatic, just as the child at first has to learn the movements necessary for walking or in writing. As it repeats these exercises again and again the movements, though conscious, become more and more automatic. Guinon claims that tic is a conscious movement at all times. Lutulle protests that it is an unconscious act. Meige and Feindel have endeavored to harmonize these views by stating that the patient is conscious of the tic before and after the movement and not during the act. That distinction is a subtle one indeed, whereas the chief point would seem to me to be not whether the movements are conscious or unconscious, but whether they are intentional.

When a tic is firmly established the movements are not intentional. It is certain that they could be suppressed if the will to do so be strong enough and be exercised to that end. To a very limited extent I believe this to be true also of choreic movements except those dependent upon organic disease. The power of control is not so strong as is the motor impulse and it is this abnormal psychic condition which is the controlling factor in the genesis of tics. "The very essence of a tic is that it is an abnormal motor manifestation dependent upon an abnormal psychic condition."

We have seen that a tic may be the habitual repetition of a normal function, habit-winking, habit-coughing, respiratory spasm, etc., but it may also be concerned with a new function discovered by the individual, as the Frenchmen say. Thus, one patient of mine discovered that by throwing his head backward he could produce a crackling sound in the nape of the neck, he repeated it again and again until the habit of throwing the head backward became an irresistible impulse and his special form of tic was firmly established. When once established the patient was able to subdue the movements in part, but it was a great strain upon him to inhibit them altogether. The attempt to check them caused the patient to break out in profuse sweat and to get into an extreme condition of general motor restlessness. Everyone who has observed such patients will grant that it is a struggle of no mean order to endeavor to check a full-fledged habit-movement. The vigor of the contractions, and the inordinate frequency of repetition are the special characteristics of these motor abnormalities.

If tics were oddities merely of muscular contraction, we might dismiss them with a word or two and with a regret that they are so difficult to cure, but they have a far deeper significance. They at times are often associated with mental disease and with evident psychic and motor disturbances; they are the first expression of mental degeneracy. They may be developed early in life, even in very young children, and if not seriously dealt with, will lead to disastrous results. Parents are too fond of admiring the tricks of their little ones, but if tricks are "tics," it will be well to put an end to them as soon as may be. The simple tic may effect any group of muscles; those of the face and neck including the platysma, are commonest. They are not merely muscular contractions, say of the frontalis of the orbicularis oris, or of the orbicularis palpebrarum, but they are the more complicated movements of winking, snuffling, whistling, shrugging of the shoulders, twisting of the neck, and soon, in children, we also observe tics "consisting of screaming, snapping, scratching or biting habits." Speech habits or speech tics are very distressing.

A few weeks ago, a boy seven years of age, was brought to me from the western part of the State, whose only symptom was a loud explosive noise which he emitted at least ten or fifteen times every minute. He was an only child and quite beyond parental control, as such children often are. There was no perceptible clonic movements of the diaphragm and no tangible cause for the explosive sounds. There was nothing choreic about the child. I proposed definite discipline and educational treatment, but the parents knew better and were certain that fresh air would cure him. By accident or otherwise this boy may have discovered that he could produce such a sound and a few repetitions after this discovery were all that were necessary to start him upon the habit.

During this present week I have seen another child, two years and nine months old that had been born with instruments but had remained entirely normal in spite of this and had no convulsions, was a bright baby and began to utter a few words at the early age of eight or nine months. During the second year of its life it had head-nodding (gyrospasms), an infantile incoordination of movement which differs from others only in this that it seems to disappear spontaneously. The parents of this child, who are intelligent and careful of their first offspring, have noticed of late that while the child speaks well it halts every now and then and has retarded and then explosive articulation—a true speech tic which will have to be checked promptly if the child is not to form the habit.

As I have said, these speech habits are not uncommon. An old student friend of mine, who has since become a celebrated astronomer, was in the habit of winding up every sentence with a rising inflection and the usual interrogatory utterances, "Hm, ah, eh?"

You will notice that we pass easily in a consideration of this subject from entirely motor phenomena to those of a psychic or psychomotor type. The chief difficulty is that there is not sufficient strength of will to check the developing habit. Many of the cases of torticollis are explained, and the French thus have invented the term "mental torticollis" for such cases.

Some years ago a bookkeeper visited my clinic who had been in the habit of transferring accounts from one ledger at his left to another upon his right. Hundreds of times during the day the head was turned quickly from left to right, the habit became established and the movements could not be suppressed after working hours. The result was a true and an annoying condition of "spasmodic" torticollis. Some improvement followed upon the directions given him to rest the head on a support so as to prevent the movements, and to turn the head forcibly in the opposite direction.

In addition to all these simple tics we have those, as Osler put it, with "superadded psychic phenomena." The "maladie des tics convulsifs," Gilles de la Tourette's disease, is characterized by a facial tic, by other tic movements, by explosive and often foul utterances (copralalia) by repetition of words and actions (echolalia and echokinesis) and by imperative concepts. These utterances are as uncontrollable as are the phychic phenomena. The impulse to repeat definite words (peculiar gestures, etc.), the doubt as to whether the light has been turned out or the letter sealed, the fear of using a knife, of crossing the street, the impulse to pick up every scrap of paper, every pin, all those imperative ideas and imperative impulses are the psychic equivalent of the motor phenomena, and the psychic symptoms are as little under control of the will as are the muscular contractions.

Sufficient has been said, I believe, to show that the tics are not merely psychomotor phenomena, but that there is a peculiar disturbance of the will, which is mainly responsible for the persistence of the habit-movement.

In former days the treatment of this condition presented great difficulty. The ordinary sedatives and the various surgical procedures which were resorted to for the cure of some of these tics were wholly unsatisfactory. The patients were eager enough to be rid of their habits and often became intensely discouraged over complete failure of treatment.

The pedagogic or educational treatment is based entirely upon the idea that the disordered psychic and motor functions must be disciplined in various ways. The French speak of this as the "traitement reeducateur." Oppenheim claims superiority for his plan and states that the one feature omitted in the French method and included in his own is the inhibition therapy. I should like to call this pedagogic treatment common-sense treatment, and I am certain that all of us have practised it for years, but it is well to

have it put before us with a more impressive title. In all of my own cases I have insisted for years back and have made mention of this in my book, that the patient be made to stop the movement if he can, and that he perform systematic movements entirely opposed to those involved in the tic, but it is a mistake not to give dignified names to therapeutic procedures. You may tell your patient to sit in the open air for hours at a time, and yet he will not do as well as he will if subjected to "air baths," as administered at various German health resorts. To be sure the air bath is given in the woods and the patients are encouraged to disport themselves nymph-like, under proper surveillance and the protection of high fences. Just so the treatment of tics will be very much more efficient if both the physician and the patient know that the method of treatment has a special designation. I am far from underrating the value of this and think we might occasionally take the hint from the practices of our European confrères who for methods which we do not always dignify by special names use the terms "psychotherapy," "aerotherapy," and the like. Let us see what pedagogic treatment offers us in the case of tics.

The principles of this educational treatment, as laid down by Brissaud, are as follows: "The immobilization of movements" and "movements of immobilization," which translated into ordinary language means the movements are to be stopped and the patient is to perform other systematic exercises. There is to be an absolute immobility, to quote the French phrase again, "a photographic immobility" of face and limbs during an increasing period of time. The patient is to sit as though he were looking into the camera. At the first sitting he is to preserve this absolute immobility for one, two or three seconds. At each sitting a second or two are to be added and thus little by little the time of absolute quiet of all muscles is to be increased. By patient endeavor the victim of tic can manage to pass an entire hour without the slightest abnormal movement. A point of some importance is that the patient should be told in advance exactly how long the session is to last. He is to sit in a comfortable position and should be encouraged by word of mouth that he *should* and that he *can* remain immobile. In other words, the effect of suggestion and of encouragement is to be added and there is no doubt that such suggestion and assistance as may be given him in this way will make his task an easier one. If the tic patient and his physician,—a French author says,—"will form an offensive and defensive alliance against the tic, and if they will remain united they will triumph." Even though there be a tremendous solemnity about all these injunctions some good will unquestionably come of them. After this period of immobility is passed the patient should be subjected to well-disciplined movements particularly of the muscles in the region in which the tic occurs.

The entire sittings are to be of short duration and to occur several times a day. At least one sitting a day should, if possible, be directed by the physician himself. If the patient is asked to do the exercises by himself, he should perform them before a mirror so that he may have his attention riveted upon them and may be able to determine whether he is doing them correctly or not. Long after the attack has actually ceased, the treatment, more particularly the methodical gymnastic exercises, should be continued.

In addition to these exercises it is important to lay down a daily routine, just as we in this country are accustomed to prescribe during the various stages of a rest cure. For my own part, I believe that if this educational plan of treatment is to be a success it can be carried out only at a private hospital or in the home of the patient, if the patient can be isolated and be placed under the care of a competent nurse or younger physician. The exact exercises will vary according to the special character of the tic. If the patient has been subject to habit winking he is to be ordered to close his eyes, to open them, to keep them closed a definite length of time, to open them for a definite period, to close one eye and then the other. At the same time order him to open and close the mouth and if there happens to be a tic of the mouth associated with habit winking, as is so often the case, let systematic movements of the lips be carried out, and in such cases it would be well to order the patient to read aloud in a very slow fashion. It is best perhaps to make him read verses and ask him to read them most distinctly and with definite rhythm. Each case should be studied on its merits and the exact nature of its movements, particularly of antagonistic movements must be dictated by the physician. In a case of facial tic of the eyes and of the mouth the following is the program prescribed by Meige:

"Every day and three times per day at the same hours, nine o'clock in the morning and one o'clock in the afternoon, and at six P.M. the patient is, during two minutes, to stare at himself in a fixed manner before a mirror observing absolute immobility of his features. During two minutes he is to read aloud, during two minutes to speak before the glass and during another two minutes to walk up and down before the mirror. This was to be repeated three times during the day and if during any exercise an attack appears he must commence over again once or twice; if a third time is necessary he must stop and not resume until the following sitting." In the treatment of speech tics (I have no doubt many cases of incipient stammering can come under this heading), it is important to submit the patient to definite vocal exercises, making him first of all perform those which seem most difficult, teaching him to prolong vowels, to speak slowly, laying stress upon the articulation of each syllable, and finally to get the

patient to read aloud phrases, then sentences, then short stories, and so on. This same method has long since been followed by many teachers who pay special attention to the education of stammerers and of those having other speech defects. In these latter cases the ordinary calisthenic breathing exercises will be of great assistance.

I have said enough, I believe, to convince you that in reality this pedagogic method does not contain anything distinctly new, but some credit is due to the various writers who have taken the trouble to give the minute details of treatment, and I have no doubt that the success attending the educational treatment of ties will be just as great as has been that which attended the employment of the definite methods outlined by Fraenkel, of Switzerland, which we now employ universally in the treatment of locomotor ataxia. The special point about the educational treatment of tics is that it is based entirely upon the influence which the mind is known to exert over these irregular movements and as the method is directed entirely to the development and strengthening of such influence it is surely worth our while to study the method and to practise it carefully.

LAVAGE OF THE RENAL PELVES IN THE TREATMENT OF BRIGHT'S DISEASE.

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My experience in the treatment of Bright's disease by lavage of the renal pelves is far too limited to determine absolutely the uses and limitations of the procedure, but it has shown me that much good may be accomplished by its employment in selected cases if the ureters be properly catheterized and the lavage carefully given. On the other hand, if the treatment be not carried out with the utmost care and attention to detail, no benefit will be derived from it and the patient may be made much worse.

Last June, in a paper read before the American Urological Association, at Atlantic City, I stated that beginning nephritis could be cured by lavage of the renal pelves and suggested that even certain of the more advanced forms of nephritis might be improved by resorting to this treatment. I also stated that in chronic interstitial nephritis, where contraction had already begun, lavage of the renal pelves could not possibly do any good. Nine months of additional work in lavage of the renal pelves has shown me that I was right in my prognosis and I have found that chronic parenchymatous nephritis that has not reached the stage of contraction is wonderfully improved, whereas contracted kidney, whether the origin was a parenchymatous or interstitial nephritis, is not improved and often made worse by lavage.

In February, 1904, one of my patients, whom I was treating for chronic urethritis, was found to have marked pyelitis together with a beginning Bright's disease. His urine contained in addition to pelvic epithelium, a small amount of albumin, many cells from the tubules of the kidney and a few hyaline and granular casts.

To cure his pyelitis, he was put under treatment by lavage of the renal pelves, and much to my astonishment, the casts, albumin and tubule cells disappeared from the urine in a very short time. Since then I have treated a fairly large number of cases of nephritis in all its various stages, by lavage of the renal pelves, and the purpose of this paper is to present the results of such treatment in so far as I have gone.

The various causes of nephritis, as enumerated by different authors, are circulatory, as in heart disease; irritants or poisons circulating in the blood as the various drugs, faulty metabolism resulting in lithemia, etc., and irritants not yet determined; and the extension of inflammation from the renal pelves. The latter cause for inflammation in the kidney, it seems to me, has not been sufficiently investigated and we will in future find that many cases now ascribed to unknown irritants are really due to extension of inflammation from a pre-existing pyelitis.

Strümpel says: "If we look for etiological conditions in cases that have a chronic course from the beginning, we can often discover nothing at all. The disease seems to have developed of itself in previously healthy persons." He thinks there is probably some "unknown toxic or infectious agency that acts on the kidneys." Opposed to this I wish to give the results of my work in the renal pelves in the treatment of catarrhal pyelitis. I have treated 142 patients suffering from this condition who gave no symptoms of nephritis. Of these, 46 had more or less involvement of the kidney, as shown by the chemical and microscopical findings. In all probability the inflammation would have continued and extended in the majority of these 46 cases until well-marked nephritis would have been recognized by the symptoms present. It is quite probable also that in many of the 96 cases who had no kidney lesion the inflammation would have extended to the kidney structure. It is this class of patients in whom the chronic nephritis seems to have "developed of itself in a previously healthy person."

Catarrhal pyelitis may exist for a long time without causing the patient much discomfort; and the few symptoms that are complained of may be ascribed to indigestion, rheumatism or lumbago. One of my patients who had pyelitis with slight involvement of the kidney had had his back cauterized several times without benefit for what had been diagnosed as lumbago, yet two treatments of the renal pelves by lavage entirely relieved the pain in the back.

In speaking of the cause of interstitial nephritis, Tyson says: "Long-continued cystitis, especially following gonorrhea, is undoubtedly a

cause in a few instances, the inflammation traveling up the ureter to the pelvis of the kidney and thence to the intertubular tissue." Strümpel does not mention the variety of inflammation that is caused by ascending inflammation. He says: "One way in which the morbific agent may also enter is especially important—namely, from the lower urinary passages, the bladder, and the pelvis of the kidney, upward into the kidney." Two quotations from Strümpel which bear directly on the etiology are, first: "The anatomical changes of acute nephritis show a continuous series from the mildest to the severest degrees, according to the intensity of the injurious action. The mildest changes, which, as we have said, are not called actual 'inflammation,' but usual simple parenchymatous degeneration affect exclusively the parenchyma of the kidney—that is, the epithelium—while the interstitial tissue, the connective tissue, and the vessels remain perfectly normal. This fact is of prime importance, since it implies that, in almost all the injurious influences acting on the kidneys, the specific renal parenchyma itself is diseased first and before the other." Again: "There is no essential distinction between the anatomical lesions of the kidney in acute and chronic nephritis. The changes that are seen are essentially the same, only they develop and extend more slowly in the chronic forms."

If we find among young men a considerable number of cases of catarrhal pyelitis with slight invasion of the kidney, as shown by the presence in the urine of degenerated tubule cells and perhaps a little albumin, we have already found the chronic parenchymatous degeneration of Strümpel, and later these same patients will probably have occur in their kidneys the interstitial changes that are found in every case of advanced chronic Bright's disease. I think if the subject is studied more closely with relation to a pre-existing pyelitis that the origin of many a case of Bright's disease, which apparently began "of itself," will be explained. If this prove to be correct, the percentage of Bright's disease recognized as having originated from a gonorrhea, will be markedly increased. It will also, to a certain extent, account for the fact that there are more cases of chronic nephritis in men than in women, because gonorrhea is more frequently followed by cystitis in the male.

I have come to regard the presence in the urine of degenerated epithelium from the renal tubules on repeated examination, whether albumin is present or not, except in floating kidneys, as indicating a beginning nephritis. We not infrequently find tubule cells in the urine simply due to the irritating effects of the oxalate of calcium or to uric acid, but these cells quickly disappear from the urine after the oxalates or uric acid have been eliminated, if there is no nephritis present. The cells are also much less degenerated in appearance when due to irritation than when due to inflammation. In all urinary analyses I believe the sooner the examination is made after voiding, the more accurate will be the findings.

In speaking of these cases I shall refer to beginning nephritis as parenchymatous degeneration. The pronounced cases will be called parenchymatous or interstitial nephritis according as the parenchyma or interstitial portion of the kidney seems more involved. And yet the two forms are so closely allied that it is sometimes almost impossible to differentiate one from the other.

I have treated 46 cases of parenchymatous degeneration and in all but eight the tubule cells and albumin have disappeared from the urine. Six of these eight are still under treatment, the other two having discontinued treatment upon the relief of the symptoms for which they consulted me. Among these 46, there were six who had casts, both granular and hyaline, in the urine. They had passed the stage of parenchymatous degeneration, but the nephritis was not so pronounced as to class them among the advanced cases. Every one of these six has been discharged cured, the urine having remained free from all evidence of nephritis for quite some time. I have watched four of these six for a period of from three to four months and there has been no indication that the inflammation had or would return.

Of the other 38 cases of beginning nephritis all presented tubular epithelium in the urine. Sixteen had no albumin and 22 showed more than a trace. The time required to cause the tubule cells to disappear varied greatly. In some, two weeks were sufficient, whereas, in others, and these were the ones who had the largest amount of albumin, these cells persisted for twenty weeks. The longest time required to cause the albumin to disappear in these mild cases was eleven weeks and the shortest, one treatment. In the latter case the albumin was not found after first treatment, but the tubule cells persisted for four weeks. Nearly all of the 38 cases remained under treatment for pyelitis or some urethral, prostatic or vesicular inflammation for some months after the trouble in the kidneys had been relieved and I was able to watch them closely and in not one was there evidence of a return of the inflammation in the kidney. I think I am safe in saying that they have been prevented from developing a typical case of parenchymatous or interstitial nephritis later in life.

I have treated 12 cases of advanced nephritis by lavage of the renal pelves. Three were chronic parenchymatous nephritis and were markedly improved. Their histories are appended. Two cases of mild interstitial nephritis were somewhat improved. One case of marked interstitial nephritis was considerably improved at first, but the treatment had no ultimate influence on the course of the disease. Three cases of well-marked interstitial nephritis were not in-

fluenced; neither were two who had had decapsulation performed. One patient in the late stages of interstitial nephritis was made much worse by the treatment. From this record it is seen that lavage of the renal pelves for Bright's disease is applicable only in selected cases; and the diagnosis is all important. Even with the utmost care we are not always capable of judging of the absolute condition of the kidney by the urinary and physical examination, and some cases that appear hopeless may respond to the treatment by lavage, while others, with everything apparently favorable, will not be influenced.

The question always arises as to how the beneficial action is brought about. Why does improvement in the condition of the kidney occur when the lavage only reaches the renal pelves? I have seen the improvement, but as yet have found no explanation that is satisfactory. For the first few treatments, immediately after lavage, the patient experiences a feeling of general malaise which lasts about an hour. This is followed by a feeling of well-being that lasts from two to three days. For from one to three days the urine is markedly increased in quantity and then slowly returns to the normal amount. For want of a better explanation I have attributed the improvement to the cleansing of the renal pelves of the products of inflammation, the establishment of better drainage from the kidney and the counterirritation of the ureteral catheter and the counterirritation to the kidney by the use of a hot, slightly irritating, solution in its pelvis. It is possible that the lymphatics of the kidney take up some of the antiseptic solution and carry it through the organ and the beneficial action occurs from this.

To follow a chronic nephritis from its inception to its termination is impossible. There are a large number of cases that have as their origin some nephritic irritant circulating in the blood, but there are a still greater number in which no such irritation can be found. It is my belief that a large per cent. of the latter cases are due to extension of inflammation from the renal pelves. The cause of the pyelitis may have been an ascending inflammation from the bladder or it may have been the irritating action of uric acid or oxalates. If we wish to guard our patients from the possibility of Bright's disease later in life, it is essential that we investigate all our urinary cases very thoroughly; even such an apparently slight thing as pain in the back should not be passed over lightly. The urine should be examined in every case. If pelvic epithelium is found, the renal pelves should receive appropriate treatment, thus preventing invasion of the kidney. The following case illustrates the necessity of a careful urinary examination:

Case I.—C. L., aged thirty years; married; was referred to me by Dr. Glinnen May 9, 1904. He said that he had never had gonorrhea and had had intercourse with no one but his wife since marriage. About three weeks before he was sent to me he had noticed a discharge from the urethra. This discharge continued in spite of medication and injection. When I first saw him he had mucopurulent discharge of moderate severity. A smear taken the meatus did not show the presence of the gonococcus. Both urines were quite cloudy and the microscopical examination disclosed the presence in the urine of a moderate amount of pus, and epithelium from the urethra, the prostate, the seminal vesicles, the bladder, the ureters, the pelvis of the kidney, and from the tubules of the kidney. A small amount of albumin was present. He had, then, a catarrhal pyelonephritis, ureteritis, cystitis, gonocystitis, prostatitis, and urethritis. His urethra, prostate, vesicles and bladder were treated according to the ordinary method for curing inflammation of these organs, and he was given internally the different urinary antiseptics. His diet was carefully regulated. After six weeks of thorough treatment there was only a slight decrease in the amount of his discharge and the cloudiness of his urine was only slightly lessened. I began lavage of his renal pelves on June 24 and continued it twice a week for four months. The albumin entirely disappeared at the end of two weeks and the tubule cells at the end of seven weeks. Nine weeks later no epithelium nor pus had been found in three successive treatments and his pyelonephritis was pronounced cured. He continued under treatment for three months longer for inflammation in the prostate and was then discharged cured. During those three months the urine was repeatedly examined for renal epithelium and none was found. It is possible that in time something could have been found to have stopped his discharge, but no medicine that I tried had any effect in reducing the number of epithelial cells from the renal pelves and tubules. And it is probable that the inflammation in the kidneys would have progressed steadily and that he would have developed a marked parenchymatous or interstitial nephritis. I was never able to determine the absolute cause of the inflammation in this case.

Case II.—L. K., single; aged thirty-five years; cigarmaker; was referred to me by Dr. Wolbarst, who had been treating him for stricture and prostatitis. I saw him for the first time on June 26, 1904. He said that he had had several attacks of urethritis, none of which had been very severe. He had had several attacks of renal colic, the first occurring thirteen years ago. He complained of a constant boring pain in the back and of frequency of urination, being compelled to pass water every two hours by day, but none at night. Examination showed the urine to be slightly cloudy in both specimens, the first containing a few prostatic points. The urethra was of normal caliber, but at two points slightly thickened. Prostate normal size, but soft and

flabby. Microscopical examination disclosed the presence in the urine of a very large number of cells from the renal pelves and many from the renal tubules. A small amount of albumin was present. He was given his first lavage June 28, and the treatment was continued twice a week until January 20, 1905, when the inflammation in his kidneys was declared cured and he was returned to Dr. Wolbarst for further treatment of the prostate. The albumin had disappeared in the fifth week of treatment and the tubule cells in the ninth. A peculiar feature of this case was that after the first few lavages he passed large phosphatic concretions, about the size of pinheads. After a month no more were seen. They were not large enough to be called calculi, but were probably the cause of his renal colics. He came in to see me March 3. He has no pain and no frequency. His urine is absolutely free of kidney epithelium and he is undoubtedly saved from a further extension of the inflammation in the kidneys.

These two cases will serve to illustrate the effect of lavage of the renal pelves in treating chronic parenchymatous degeneration, or beginning Bright's disease.

Case III.—Typical case of subchronic parenchymatous nephritis without tendency to cirrhosis. Cause, probably ascending inflammation from the bladder. W. H. S., aged thirty-two years; clerk; came to the office June 20, 1904. His waxy ears, lips and complexion, with dulness of eyes and general appearance showed him to be in the last stages of parenchymatous nephritis. He had had a urethritis fifteen years previously, but considered himself cured. In August, 1903, he had had pains in the back which had been ascribed to rheumatism and indigestion. In September he began to have headaches. The indigestion became worse, was temporarily relieved by essence of pepsin, but the headaches continued. At about the same time he began to be troubled by insomnia and nervousness. In December the headaches had become more frequent and severe. He felt languid and indisposed to exert himself; had no appetite; nausea in the morning; buzzing in the ears; pain in the back; puffiness under the eyes; spots before the eyes. All these symptoms continued until March, 1904, when he apparently had an acute attack of nephritis after exposure to cold. From that time until I saw him he had had considerable edema, at times becoming very marked, with all the other symptoms that usually accompany parenchymatous nephritis. During May he had had three attacks of uremic convulsions. He had been troubled constantly by dyspnea on exertion, and at times had had considerable nausea. He said there had been a constant uriniferous odor to his body. He was unable to walk over two blocks without resting and said that it seemed impossible for him to stoop to pick up his shoes. From March until June 13 he had not worked, but had spent the major part of this time in bed. He had visited several of the mineral springs and had been somewhat improved. When he came to me he had been at work one week and during that time had failed rapidly. Often while at his desk he would be seized by an attack of dizziness and have to grasp the desk to keep himself from falling. His face and ears were waxy; eyes lusterless; lips almost of the same color as the face; nose pinched. There was marked edema of the legs to above the knees and edematous area over the sacrum. His normal weight was 117 pounds, but on June 20 was 121, the increase he attributed to "water." The pulse was 88 and fairly high tension. Heart moderately increased in size; first sound roughened, second sound accentuated. Quantity of urine said to be 50 to 60 ounces per day. Urine quite cloudy; sp. gr. 1.020, and solidified on boiling. Microscopical examination showed a large number of granular and hyaline, and a few blood and epithelial casts, with a moderately large number of pelvic and tubule cells in a state of fatty degeneration. He was treated by lavage of the renal pelves twice a week and at the end of two weeks no casts could be found in the urine. The albumin had decreased to 50 per cent. by bulk—by Esbach's test was 5 gms. to the liter. The report of August 5 stated that there were no casts, very few pelvic and tubule cells and the albumin was 3½ gms. to the liter. From that date he was treated only once a week. On August 12 a few hyaline, granular and epithelial casts were found on both sides; albumin 3 gms. on the right, 4½ on the left. On August 19 there were no casts and the albumin had dropped to 2 gms. on both sides. He contracted a severe cold on August 27, and on September 2 the albumin was 5 gms. From then until September 28, when his treatment was discontinued, he usually showed a few granular casts and the albumin gradually dropped to 3 gms. When he came to me he was on a very restricted diet and was taking diuretin and nitroglycerin. I made no change in either the diet or medication. He has reported to me once a month since the lavages were discontinued and I have found that his condition still continues to improve. There has been a steady decrease in the amount of albumin and the casts are harder and harder to find. The patient tests his own urine every morning and finds that every time he takes salts that the albumin is markedly increased. He reports that the albumin varies from 2 per cent. to 10 per cent. by bulk, but when he takes salts it will jump up to 25 per cent. The last urinary examination that I made showed the albumin to be 1 gm. to the liter, and only six granular casts were found in looking over four slides. It is now nine months since he began treatment with me, and during that time he has lost only three days from work, when he was confined to the house last fall with a severe attack of bronchitis. He tells me that he is feeling better and stronger than he has at any time since August, 1903.

During the blizzard early in February he walked three miles through the snow to and from his work and said that it did not tire him at all. The case is a striking one, showing as it did from the very beginning of treatment by lavage improvement which cannot possibly be ascribed to anything but lavage of the renal pelves. It is not probable that he will ever be cured, but he has been put into such condition that he is able to work and support his family. He has been made comfortable and his life has undoubtedly been prolonged many years.

Case IV.—Typical case of parenchymatous nephritis, probably due to irritants circulating in the blood. Miss N., aged fifteen years; schoolgirl; came to the office September 14, 1904; gave the following history: In May, 1903, the morning after a hard game of basket-ball, she had quite severe pains in the lower part of the abdomen, radiating to the back, and had noticed that there was a large amount of blood in the urine. She was confined to her bed for two weeks, but just so soon as she was allowed to be on her feet again blood appeared in the urine. During the summer of 1903 she was taken to mineral springs in California and was kept on a milk diet and given medicine by the mouth, but the blood still persisted in her urine. She was kept in bed during September and October, 1903, and since that time a small amount of blood has occasionally been seen in the urine. Albumin was discovered soon after the blood was first seen and has persisted ever since. It has averaged from 5 to 10 per cent. by bulk.

When I first saw her the only symptoms complained of were an occasional dull headache with a general feeling of lassitude and weakness. There were no pains and no frequency of urination. No edema. No disturbance of vision. She was very anemic and appeared to be very weak. Pulse 95 and not increased in tension. Heart not increased in size and heart sounds normal. An Esbach's test showed 4 gms. albumin to the liter. Sp. gr., 1.014; brick-dust sediment; urea, urates and phosphates diminished. Microscopical examination showed a moderately large number of crystals of uric acid; few blood globules; few to moderate pus corpuscles; few to moderate number of epithelial cells from the renal tubules, the renal pelves, the ureter, the bladder and vagina. Few to moderate number of hyaline, granular, granular-fatty and epithelial casts. The patient was catheterized and treated by lavage of the renal pelves the following day. The report for the separate urines is practically the same as for the mixed, with the exception that there were no bladder nor vagina cells and the crystals of uric acid were absent. The inflammation was slightly more pronounced on the right side.

After the first and second treatments severe renal colics occurred, but thereafter no disagreeable symptoms manifested themselves. Very shortly after lavage was begun the number of casts became fewer and fewer. At times none could be found and then a few would be reported. The number of epithelial cells decreased to quite an extent and became more healthy in appearance. The albumin fluctuated markedly; at times being one-half gm. to the liter, then running up to 2 gms.

The patient was given a mixed diet: only veal, pork, the indigestible vegetables and all fried food being forbidden. She was attending school all through her treatment and was allowed to take moderate exercise in the open air, but never violent enough to sweat. The various modern uric acid solvents were tried, but without result. Old-fashioned rhubarb and soda, however, decreased the uric acid to quite an extent. Basham's mixture seemed to increase the albumin, so she was given tablets of iron, arsenic and strychnine with good results. She was treated three months and then sent to her home. The examination of her urine just before she left New York showed very few granular casts on both sides; very few tubule cells; moderate number of pelvic cells; few uric acid crystals; albumin three-quarters gm. to the liter. The patient's general health was markedly improved. Her mother, who had not seen her from the time she began treatment wrote me that she considered the change in her daughter's appearance little short of miraculous. The patient writes that she is now feeling twice as well as she ever did in her life. Owing to her youth she may entirely recover. She is now on a very restricted diet consisting of milk, well-cooked cereals, fish, white meat of poultry, clams and oysters. She is allowed lettuce, celery, asparagus, spinach and string beans. The report of the urinary examination made February 19, two months after treatment was discontinued, is: Albumin, one-thirtieth of 1 per cent; urea, 6 gr. to the ounce; sp. gr., 1.012; few crystals of uric acid; very few blood globules; few pus cells; few tubule cells; few cells from the renal pelves, bladder and vagina; no casts could be found.

I should have preferred to have kept this patient under treatment for one month longer, but it is my belief that she will continue to improve so long as she obeys instructions.

Case V.—Mr. B., aged forty-four years; manager; came to the office November 20, 1904. He had two attacks of urethritis twenty years ago. Each was quite severe and each lasted three months, but the patient thinks he was entirely cured. He had been perfectly well up to three months ago when he noticed he lacked the energy he formerly possessed and became easily tired. There was dyspnea on exertion. He had occasional numbness of the hands and feet; occasional headaches in the occipital region. Eyes would become blurred at times, and he often found great difficulty in reading unless there was a very strong light. Was extremely nervous and troubled by insomnia. No other symptoms.

Urinary Analysis.—Amount said to be 33 ounces; sp. gr., 1.022; urea, 330 grs.; urates phosphates and chlorides diminished; albumin, one-half gm. to the liter; crystals of uric acid, few to moderate; few pus corpuscles; few epithelial cells from the tubules of the kidney, renal pelves, ureters, and bladder; few to moderate number of hyaline and epithelial casts. He was very irregular in his treatment on account of business engagements and because of the extreme sensitiveness of the ureters, a proper lavage could not be given on the first two attempts. He has had only eight thorough lavages of the renal pelves, yet all his symptoms have disappeared. Even the eye symptoms have been relieved and he now reads as well as ever. The urinary analysis does not show so marked improvement as does the general condition. The albumin is now approximately 1 to 6 gms. to the liter. The uric acid still persists. The casts are fewer and occasionally entirely absent. The number of cells from the renal tubules, pelves and ureters have diminished slightly. I feel confident that if he were treated twice a week for about three months the inflammation in the kidney would be absolutely cured. He has not been restricted at all in his diet and the only medicine given was diuretin, which he had taken before without effect.

Case VI.—Typical case of interstitial nephritis, well advanced. P. J. N., aged thirty-two years; clerk. I saw him at his residence in consultation with Dr. C. E. Teeter. Part of my notes on this case have been mislaid so the past history cannot be given in detail. He had never had a venereal disease. His father died of gout about twelve years ago. The patient had been confined to his bed for three months and had been on milk diet and taking diuretin, nitroglycerin and strychnine. For three weeks he had vomited nearly everything he had taken by the mouth and was exceedingly weak. Pulse 94, and of very high tension. Heart considerably hypertrophied and second sound markedly accentuated. There was no edema. I advised against lavage of the renal pelves as not indicated in this case, but I performed it at the patient's request. The urinary analysis of the separate urines showed that both kidneys were affected equally. The albumin was 3½ gms. to the liter; urea, 4 grs. to the ounce; few to moderate blood globules; a few pus corpuscles; few granular casts; a very large number of epithelial cells from the renal pelves; moderate number from the renal tubules; few crystals of uric acid. Immediately after the first treatment the nausea entirely disappeared and he felt very much improved generally. He came to New York and was in the Post-Graduate Hospital for two weeks, receiving while there four lavages. Then he considered himself well enough to go home and come twice a week for treatment and he followed out this plan against my advice. The examination of the urine taken at the last treatment, while he was in the hospital, showed that the albumin had dropped to such a small amount that it could not be accurately measured by Esbach's test. The epithelial cells diminished considerably and no casts could be found.

On his first visit to the city after leaving the hospital he had an attack of heart failure and from that time he rapidly failed. I gave him two lavages at his home, but without result. He died late in November. This case will have to be put down as a failure, although the distressing symptom of nausea was at once relieved and he was generally improved at first. If he had been kept in bed all through his treatment perhaps the story would have been different. Yet he could never have shown the wonderful improvement that occurred in Case III.

Lavage of the renal pelves requires the utmost delicacy in handling the instruments and the injections through the ureteral catheters must be made with patience and gentleness. Asepis must be rigorously observed not only in regard to the cystoscope and catheters, but the hands of the operator and the urethra of the patient must also receive attention. The least roughness in the use of the cystoscope may cause injury to the urethra and vesical trigone. Lack of delicacy in the passage of the ureteral catheters may cause hemorrhage from ureters. The use of too strong or too irritating solutions may cause severe renal colic; and an injection that is too copious or given with too much force causes considerable pain and will not benefit the patient.

I consider the straight view cystoscope much preferable to the angular view in that it causes the patient much less pain; there is less danger of injury to the ureter; the character of any obstruction in the ureter may be more easily determined; and the entire operation of catheterization of the ureters is much more quickly completed with this form of instrument. Also I have been able to catheterize easily with the straight view cystoscope several patients on whom I had failed with the angular view. The instrument with which I have done most of my work is the one devised by F. Tilden Brown. I have had a modification of this instrument made so as to preserve its many valuable points and overcome its disagreeable features. With this modification it seems impossible for any one to injure the urethra or trigone.

The medication must be selected to suit each case. We often find one solution distinctly irritating while another is soothing. It not infrequently happens that a patient will be improved for a time by using one solution and then it will become necessary to change the form of injection to obtain the result desired.

The drugs that have been of more service in my hands in the treatment of nephritis by lavage are protargol, albargin, silver nitrate and argyrol. Protargol and albargin are used not stronger than one-quarter to one-half of 1 per

cent. Silver nitrate in a vehicle of boric acid is used 1 to 8,000, increasing slowly to 1 to 2,000. Argyrol, freshly dissolved, is used at 5 per cent.

Method of Lavage.—The time occupied in giving a lavage varies with different patients. Those who have a tolerance for solutions in the renal pelves require about fifteen minutes, while patients with irritable or sensitive ureters require half an hour. In the former cases the solution is thrown in slowly until there is a feeling of fulness over the kidneys; in the latter only about a dram should be thrown in at a time. In all about two to four ounces are used on each side. The injection should always be given at a temperature above that of the body—105° to 110° F. seems to be best borne by the patients. If the ureters are very sensitive the patient may, on the first injection, experience colicky pains, become nauseated and sweat profusely. If this occur it is best to remove the catheters immediately and postpone further lavage for at least one week.

A proper lavage of the renal pelves consists of repeated injections of small quantities of a medicated solution into the renal pelves through a catheter that has been passed well up the ureters toward the renal pelves. It is not necessary that the eye of the catheter be in the renal pelves, but it should be within six inches of it. After each injection the fluid is allowed to flow out through the catheter before a second injection is given. Never inject large quantities with the expectation that the fluid will run down the side of the catheter into the bladder. No one would distend the urinary bladder with the expectation that the fluid would flow out of the urethra by the vesical catheter. I have seen intense renal colics caused by the injection of only 1½ drams, and I have often wondered what would have happened had I injected more. As the catheter is withdrawn the solution is deposited all along the ureter so as to treat that organ. The patient is then requested to pass the water remaining in the bladder; a Janet wash of silver nitrate is given and the operation is completed. When I first began lavage of the renal pelves one of my patients developed a urethral fever after treatment. I have seen none since. In the early months also I had three cases of infection of the ureters from the catheters, but at present that is an unknown accident. The only disagreeable feature of this work at present is an occasional renal colic which may come on while the patient is on the table. Usually one-thirtieth gr. strychnine will relieve, but morphine is occasionally required.

In conclusion I wish to call your attention to the following points:

1. Not enough importance has been given to the probability that a large percentage of cases of chronic nephritis, in whom no discoverable cause for the inflammation can be found, are really due to extension of inflammation from the renal pelves.

2. Lavage of the renal pelves is only applicable in selected cases of nephritis.

3. Lavage of the renal pelves will certainly cure a beginning nephritis that is due to extension of inflammation from the renal pelves.

4. Lavage of the renal pelves in subchronic and chronic parenchymatous nephritis will check the disease and markedly improve the general condition of the patient, in those cases that have not reached the stage known as cirrhotic kidney.

5. Lavage of the renal pelves for nephritis by one who is not properly trained in the technic cannot possibly improve the condition of the kidney and may do harm.

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FETAL MANIFESTATIONS OF THE TOXEMIA OF PREGNANCY.[1]

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IT was thought that in the consideration of the toxemia of pregnancy, it might be of interest to present some of the literature in regard to its occurrence in the fetus and to record the writer's own experiences.

The high mortality of the infant born of eclamptic women is attested by various observers. Bar, out of 80 cases of eclampsia, found that in 37 or 46 per cent., the fetus was dead born; 27 others died within the first three days after birth, and still others within a few weeks. He ascribes as a cause the high blood pressure that makes hemorrhages in the placenta. He also observed changes in the central nervous system, liver and kidneys.

In seventeen cases hemorrhages were noted in the meninges, liver and kidneys. Fatty degeneration was also present in the liver and kidneys, although less severe than in the maternal organs. He regards these manifestations as secondary and thinks they furnish evidence against the fetal origin of the disease. They may be, he says, of traumatic origin, rarely they are the result of infection, but are usually agonal and are not characteristic of eclampsia.

The number of cases of fetal toxemia recorded in the literature is small, and they have been regarded from two standpoints: First, as furnishing evidence that eclampsia is due to some poison generated in the mother and transmitted to the child; secondly, as offering another theory for the origin of the disease.

The transmissions of other toxins from the mother to the fetus, although an obscure chapter in placental physiology, has been sufficiently well demonstrated to lead us to believe that such may be the case in the toxemia of pregnancy.

Schmidlechner gives the causes of fetal death as due to: (1) high temperature; (2) disturbances of placental respiration from the changes of metabolism; (3) pathological changes in the

[1] Read as part of a Symposium on Toxemia of Pregnancy, at the New York Obstetric Society, November, 1904.

composition of the placental blood; (4) the transmission of infectious substances or other poisonous products. He cites a number of observations relative to the transmission of various toxins from the mother to the fetus. The demonstration of various gases in the fetal blood by Zweifel, Fehling and Porax; the presence chemically of chloroform in the fetal blood from a patient taking chloroform during labor; the demonstration by spectral analysis of coal gas in three children by Breslau and Freund; the salts of quinine by Runge and Porax, strychnine by Guinard, potassium iodide by Dührssen, and morphine by Peaslee and Thomas. He also notes the transmission of various infectious diseases from the mother to the fetus, such as typhoid, cholera, pyemia, septicemia and tuberculosis. Pregnancy, he says confers no immunity against infections, but typhoid and scarlet fever rarely occur, and cholera and smallpox are comparatively frequent, and their course is usually very severe. He considers the interruption of pregnancy to be due to the death of the fetus as pains rarely appear first. Sixty-three per cent. of typhoids abort, and the Widal reaction and cultures have been demonstrated in the fetal blood.

In cholera 54 per cent. abort. The vaccine virus, however, usually has no effect on the fetus, as, in mothers repeatedly vaccinated during pregnancy, subsequent vaccination of the child is almost always positive. Schmidlechner performed experiments upon nineteen pregnant animals with the diphtheria toxin and made the following conclusions: (1) A portion of the toxin is transmitted to the fetus and causes the same changes as in the maternal organs; (2) the intensity of the changes depends upon the quantity of toxin injected into the mother; (3) the changes develop quicker in the fetus and in higher grade than in the mother; (4) the path is through the placenta; (5) a very short time is required for the transmission; (6) most of the toxin in the fetal circulation remains for a long time unchanged, and the injection of this blood into another animal causes the same changes as were present in the first poisoned mother and fetus.

Bossi says that, except for diphtheria and its toxins, diseases in pregnancy are more acute, run a higher temperature, and are more fatal, frequently causing abortion, especially in the latter months, and that bacteria may be found in the placental and fetal blood in a number of cases.

The occurrence of convulsions in both twins born of an eclamptic mother, as recently reported by Brettauer, furnishes very satisfactory clinical evidence of the transmission of the eclamptic poison. Numerous other clinical observations have also been made. The presence of jaundice at birth in 56 infants out of 62 born of women who suffered from grave jaundice in pregnancy is reported by Lomer and is certainly suggestive, in the light of our present knowledge, of the toxemia of pregnancy. Cragin reports a case of an infant born of an eclamptic mother with general muscular contractures, but the possibility of intra-uterine rigor mortis in this and other conditions, as presented by Feis and Wolff, will demand careful histological examination before accepting such a case as a demonstration of the transmission of the eclamptic poison.

The presence of the disease in the fetus, as shown by post-mortem findings, is recorded in very few intances. Dienst, in 1902, reviewed and critically analyzed the cases recorded in the literature and also added his own experiences. They are as follows: Six cases of Schmorl, in which the autopsy in four showed severe degeneration of the liver and kidneys. Five autopsies of Lubarsch showing hemorrhages and necroses in the kidneys and thymus, slight in the liver. He considers them not to be agonal because of the presence of hyaline thrombi. One case of Prutz, in which the death occurred during labor, showed dilatation of the vessels of the kidneys and casts in the urine. A dead fetus removed by Cæsarean section by Gottschalk, showed epithelial necroses of the kidneys. Schmid found in a child that died from convulsions, superficial hemorrhages, cloudy swelling and miliary necroses in the liver and kidneys; casts were present in the urine.

Ebinger in five autopsies upon eclamptic children found in addition to ecchymoses of the pleura and pericardium and hyperemia of the liver, spleen and kidneys, cloudy swelling in the kidneys and heart muscle. Wilke, in one case of infantile convulsions, found an encephalitis.

Dührssen found a cerebral apoplexy in a child two days old that had had no convulsions. Dohm, in two dead fetuses removed by Cæsarean section found in one, epidural and subarachnoid hemorrhages, in the other marked venous congestion. Moraweck, in a case that had had ten convulsions, found, in addition to struma congenita and small pericardial hemorrhages, a very marked congestion of the liver, kidneys and spleen. Wendt found surface hemorrhages in different organs of a child born of a mother who had a severe albuminuria and jaundice without convulsions, but whose autopsy showed typical eclamptic changes. Knapp also found changes in the organ of a child similar to those in the mother. Dienst adds the clinical history and autopsy reports of two cases of his own, in which hyaline thrombi were found in the liver, lungs and kidneys. He also gives the result of the urinary examination in four infants, in which albumen casts and blood were found, the first time, he says, that the presence of blood has been noted in the child's urine in these cases.

Since this article of Dienst's, the writer has found a case, reported by De Lee, of eclampsia with convulsions in the child, but there is no description of the lesions with the report.

Bar and Daunay in 1903 found urobilin in the blood of an infant born of an eclamptic mother who had urobilin in the urine and blood. Very early in the present year, Dienst has added two cases to the literature. One was that of a woman,

who had suffered from toxemia for three months. An eclamptic seizure occurred during the labor, after which the fetal heart sounds ceased and the patient died in twenty hours. The maternal organs showed hypertrophy and dilatation of the heart with cloudy swelling and fatty degeneration of its parenchyma; the kidneys a chronic nephritis with acute degeneration; in the liver were fresh and hyaline thrombi. In the child's organs, the muscle striation of the heart was found to be obscure; the kidneys were the seat of cloudy swelling and fatty degeneration; there were also marked hemorrhages and edema. The urine showed red and white cells and casts; there was fatty degeneration with marked hemorrhages in the liver; in some places the cells were completely destroyed and the spaces filled with red cells; there were also red cells between the better preserved liver cells, and many recent thrombi were present in the central and interlobular veins. He considers these changes to be more recent than those in the maternal organs.

His second case he offers as anatomical proof of the course of the disease in both the mother and the child. A young primipara had been sick for two weeks, and while preparations were being made for the delivery, because of a dry labor and a weakened fetal heart, an eclamptic seizure occurred, followed in the next three hours by three others, after which recovery ensued. The child was born markedly asphyxiated and its first urine showed albumin, casts and leucin. Convulsions began in twenty-seven hours followed by jaundice and death. The autopsy showed punctate hemorrhages in the heart and pleura. The striation of the heart muscle were obscure and the cells showed cloudy swelling. There was fatty degeneration of the liver and in some places the cells were entirely destroyed; in the left lobe especially there were anemic and hemorrhagic necroses. He concludes especially from the finding of leucin in the child's urine, that an intra-uterine disease of the liver had existed.

These cases represent practically all that are recorded in the literature of the manifestations of fetal eclampsia. The writer wishes to add four others of his own:

Case I.—A young woman, single, eighteen years of age, had been suffering from amenorrhea, headaches, and a general feeling of malaise for several months, for which she had received large doses of iron. After returning home from a shopping tour she was suddenly seized with convulsions for which she was energetically treated for several hours on the assumption that they were of uremic origin, until the observation of the enlargement of the abdomen disclosed the fact that she was about seven months' pregnant. The cervix was undilated, and inasmuch as the patient's condition was somewhat improved, it was decided to rupture the membranes and wait until the cervix was sufficiently softened and dilated to perform extraction without injury to the maternal soft parts. A seven months' fetus was extracted the next day, which, although one or two repirations were noted during the extraction, was born dead.

The autopsy of the child, performed by Dr. James Ewing, showed the following: Body of a fairly well-developed seven-months' fetus; lungs collapsed; do not crepitate; heart normal. Liver of normal size, consistency moderately reduced. Glisson's capsule along anterior edge is stripped up by a fresh blood clot over an area 1½ cm. in circumference. Surface and cut section show uniform and intense congestion. Peritoneal cavity contains about 2 c.c. of clotted blood. Kidneys are both intensely congested; capsule and perirenal fat infiltrated with blood. Cortex shows minute hemorrhages. Both adrenals infiltrated with blood. Spleen normal.

Histology.—Liver. The liver cells show intense granular and hydropic degeneration, the cells consisting only of a shrunken nucleus, cell membrane and a few coarse cytoplasmic granules. There is little fat in the cells. Near the large hemorrhage the liver cells are destroyed by extravasated blood. There is no trace of bile in the liver cells or bile radicles, and no thrombi were found.

Kidneys.—There are numerous focal hemorrhages in the cortex and medulla, and marked general congestion. The cortical tubule cells show advanced granular degeneration. The other viscera show considerable congestion but no other noteworthy changes.

Case II.—Aged thirty-three years. VI-para. Previous history negative. Had been perfectly well during the pregnancy up to the day of her admission to the hospital. She stated that because of some contagious disease in the tenement where she lived she was obliged to walk the streets for three hours during the evening, becoming thoroughly chilled, and that when she found shelter and food, she overate, and in a few hours was seized with convulsions and brought to the hospital. Upon admission there was deep coma. General edema present. Marked urinary changes, but no leucin or tyrosin. After an intravenous infusion of 1,200 c.c. of salt solution, a modified Champetier de Ribes balloon was introduced into the cervix and saline irrigations of the colon were given for one-half hour every two hours. Uterine contractions began almost immediately and in six hours a seven months' fetus was normally delivered. The mother made an uneventful recovery. The child lived three days and had no convulsions.

Examination of the child's organs by Dr. Martha Wollstein showed the following: Lungs, pancreas, lymph-nodes and suprarenal capsules were markedly congested. *Liver.*—Its whole appearance is that of a fetal liver in which the lobules are indistinctly outlined. The intralobular capillaries between the columns of liver cells are distended with blood, and small hemorrhages have occurred, causing distortion of the columns with isolation of individual cells, which are nar-

rower than normal from compression. The interlobular septa are edematous and the veins are congested. The arteries are empty and the bile ducts are normal. There are no areas of necroses. Kidneys show marked congestion and in the intermediary layer there are some small hemorrhages.

Case III.—Aged thirty years. II-para. No previous history. Had had no convulsions for twenty-four hours before admission to the hospital. General edema; deep coma; urine contained large amount of albumin, casts and considerable blood. The pulse was 90, but of poor quality. Head upon the perineum. A seven months' dead fetus was rapidly extracted with the forceps. An intravenous infusion of 1,000 c.c. salt solution was given immediately, but before its completion an abortive convulsion occurred with marked cyanosis and the patient died. Post-mortem examination of the maternal and fetal organs, made by Dr. Martha Wollstein, showed the following: *Maternal.*—Heart muscle normal. Spleen intensely congested.

Uterus.—Placental tissue in the inner surface, syncytial cells being contained in the blood-vessels between the muscle cells just beneath the submucosa. These cells are in columns of 3 to 5 and do not fill any vessel. *Liver.*—Its cells show very marked granular degeneration, more so in some lobules than in others. Fatty degeneration has only just begun in some of the cells. The interlobular branches of the portal vein and the hepatic artery contain blood but are not distended. The intralobular capillaries are irregularly distended, causing pressure atrophy of many liver cells. The central veins are congested and the lobules are indistinct, several distended blood-vessels making up the center of the lobule. Hemorrhages have not generally occurred. Many leucocytes are collected within the congested vessels and there are a few outside. In some cases the entire lobule consists of dilated blood-vessels with very few liver cells left. Many lobules retain their normal conformation. When small hemorrhages have occurred, the liver cells at the periphery of the lobules show a marked hyaline degeneration, and the blood lies between the capillary walls and the liver cells. Fibrin thrombi are numerous and there is loose fibrin in the capillaries.

Fetal organs.—Liver.—Its cells have undergone a granular degeneration of the cytoplasm, amounting in some instances to complete necrosis; in others the nuclei remain intact and the cells have a transparent appearance. The capillaries and interlobular blood-vessels are congested. Small hemorrhages have occurred at the periphery of some lobules, by which the blood-cells are lying in and upon the liver cells, but have caused no pressure atrophy. *Kidneys.*—Degeneration in the epithelium of the tubules is very marked.

Case IV.—Aged twenty-five years. II-para. During the later months of the previous pregnancy, the patient had headache and trouble with her eyesight, which did not disappear until four weeks after the labor. Since then she has had no symptoms until about the sixth month of her present pregnancy, when headache and slight trouble with her eyes occurred and she noted edema of the face and legs. Upon admission to the hospital the edema was marked, especially about the face. The urine contained considerable albumin and casts; 11 grams of urea were passed in twenty-four hours. No leucin or tyrosin. Examination of the eyes showed a well-marked optic nerve atrophy, which was evidently the result of the previous pregnancy. Numerous hemorrhagic spots were noted in different parts of the body, appearing like bruises, and were possibly from that cause. In spite of rest in bed, fluid diet, and colonic irrigations, the symptoms, although improving slightly at first, became more marked in ten days, so that labor was induced by means of the modified Champetier de Ribes balloon, and a 6½ months' fetus was delivered, which lived twelve hours. The edema of the mother persisted for several days after delivery, but gradually subsided and she made a rapid recovery, although albumin and casts were still present in the urine at the time of discharge.

The post-mortem examination of the fetal organs, made by Dr. Martha Wollstein, showed the following: Edema of the hands and feet were present. Thymus gland contained many hemorrhages, the blood lying between the small sound cells, and in one instance filling about one-third of the lobule. Stomach showed congestion of the capillaries between the glands, and small hemorrhages were present upon the surface. *Spleen.*—Intense congestion and small hemorrhages into the pulp. *Liver.*—No hemorrhages were present, but there was marked congestion and hyaline masses were seen in some of the smaller blood vessels. The cytoplasm of the liver cells was granular with normal nuclei. There were no peripheral areas of necrosis, but columns of cells in many lobules were almost destroyed, having only a fringe of cytoplasm around the nucleus. *Kidneys.*—Showed intense congestion, and a few small hemorrhages were present between the tubules and into Bowman's capsule.

A comparative study of these lesions in the fetus must certainly establish their identity with those now recognized as associated with the effects of the eclamptic poison in the mother, as well as with those of other poisons. No uniform variation from the maternal lesions can be recognized in their distribution, although possibly they may be considered in general to be less intense than those in the mother. Marked congestion and hemorrhages may be more uniformly present in the fetus, but no more than is seen in some individual examples in the mother. Destruction and necrosis of the cells is, however, not so uniformly present, but Dienst's last case and the writer's first offer evidence of an ad-

vanced stage of the process in the case of the cells of the liver.

The prognosis for the fetus seems to depend, as Dienst says, more upon the length of time that the disease has existed than upon its intensity. The earlier in pregnancy, then, that disease begins, the less chance has the fetus for ultimate survival. In cases of short duration and severe intensity, although signs of asphyxia may be present, the child is frequently born alive. In cases of long duration, although comparatively mild for the mother, fetal death is more apt to occur, or if born alive, the child is apt subsequently to develop eclampsia and die, presenting at the autopsy changes in the organs, as in Case IV of the writer's, that would be considered severe in the mother.

The finding of leucin in the infantile urine of one of Dienst's cases is unique in the literature, and offers hope that a more uniform search for it in the maternal urine will furnish some guide to the clinician in the treatment of this important disease. It was absent in all of the cases reported by the writer, but in four other cases that had symptoms of a moderately severe toxemia without convulsions, it was found to be present. Dienst's opinion that it is evidence of an advanced pathological condition of the liver may or may not be true, as we have not any exact knowledge of how severe a lesion is compatible with recovery.

The fetus as an etiological factor in the disease has its advocates. The first suggestion that eclampsia may be of fetal origin is generally accredited to Fehling, in 1899, although Mouton writing in 1902 of the history of the fetal theory, says that Van der Höven first mentioned it in 1896. Christiani calls attention to the fact that Kollmann in 1896 first attempted to produce experimental evidence.

It is Dienst, however, who has most enthusiastically accepted this theory and from him we obtain fullest details regarding its occurrence.

The more frequent appearance of eclampsia in the latter months of pregnancy, its frequent occurrence in twin pregnancies, and the cessation of the symptoms after the death of the fetus, or its delivery, furnish evidence, he thinks, as to its fetal origin. He cites as further evidence a case of Kreutzmann, in which an eclamptic seizure occurred in a child thirty-six hours after labor, whose mother had had no convulsions. He also refers to Chamberlent who found the blood of a fetus more toxic than that of the mother. Dienst's interpretation of the fetal theory is that because of the disproportionate growth of the fetus at the end of the pregnancy some retrograde products of albuminous metabolism are found, which can only be transmitted to the mother through the placenta, as the fetal kidneys do not functionate.

These fetal poisons, even if they are small in quantity, are harmful to the maternal organism because they are delivered directly into the general circulation. If the elimination of these poisons is diminished by any insufficiency of the heart, liver or kidneys, they are retained, causing a degeneration and greater insufficiency of these organs, on account of which the liver is unable to complete its metabolism, and thus more toxicity will result. These poisons form a globulin in the blood and an increased formation of a ferment, which hastens the clotting of blood, causing thromboses and some of the necroses.

He does not think there can be any overproduction of poison in the child at the beginning of the disease, otherwise they would all die. While, then, he accepts the fetal origin of the disease, he considers the lesions in the fetal organs to be secondary to the poisons as developed and transmitted by the mother. As a certain time must elapse before the poisons become harmful to the fetus, it may happen in a very acute and severe form of the disease that the changes in the organs are very slight, analogous to the relatively slight changes that are found in the severest forms of peritoneal sepsis.

It may be said of this theory that fetal metabolism is probably a factor in the evolution of the disease in some cases, but the occasional occurrence of the gravest forms at a very early period of pregnancy would seem to make the possibility of the fetus as its origin incredible.

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WHAT ADVICE SHOULD BE GIVEN TO WOMEN WITH MALPOSITIONS OF THE UTERUS?

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The frequency with which the above question arises, and the wide variance of opinion existing among specialists, as well as general practitioners, regarding the importance of uterine displacements, leads me to believe that a brief consideration of some of the more important aspects of this only too frequent condition will not prove lacking in interest.

The fact, long recognized, that in individual cases the previously normal uterus can lie in a retroposed position, without in any way disturbing the general balance of health, has led many to underestimate the significance of this condition as a causative factor of disease in a large, and unfortunately increasing, number of women. As a result many are dragging along through a tedious existence of ill health bordering on the verge of chronic invalidism, unfitted and unable properly to perform their social and marital duties, denied the saving and priceless boon of maternity, a burden to themselves, a disappointment to their family and friends and a sore trial to the poor martyred husband, whom the physician alone can understand. Truly a most pitiful social unit, deserving of our deepest sympathy and best endeavors in her behalf!

All cases of malpositions may be divided into two classes, the congenital and the acquired. As it is in the first that the most difficulty in advising is encountered, we will reserve it for a fuller consideration later.

The most marked, as well as the most serious, example of the acquired class is that of inversion, either partial or complete, and the indications for an immediate reduction so pronounced, that little time need be spent regarding the advice to be given the patient, save that the earlier appropriate measures for its relief are instituted, the greater will be the chance of obtaining a near approximation to the normal.

Of frequent occurrence is procidentia, also either partial or complete. Here there exists a hernia, not only of the uterus, bladder and appendages, but often of the omentum and small intestines as well, which, when allowed to persist, frequently gives rise to disease in widely removed structures, as a pyelitis or even a pyonephrosis by ascending infection from a chronic cystitis originating in the displaced bladder. As procidentia is progressive, usually proceeding from bad to worse, and the difficulty of effecting a cure increasing in direct proportion to the length of time it is allowed to develop, an early operation is attended with less danger and uncertainty of result, and the patient should be so advised, even though in the beginning her symptoms be slight.

The next acquired form probably most frequently encountered is the retroversion, or retroflexion occurring after a full term delivery, or miscarriage in the latter months of pregnancy, where a prompt replacement before adhesions have formed with the insertion and two to three months' use of a suitable pessary until the uterus and its ligaments have properly involuted is, as a rule, all that will be necessary. It is in these cases that the pessary has its greatest value, the retrodisplacement being readily corrected, and the necessity for an operation later thus avoided In the cases of adherent retropositions, accompanying disease of the appendages is the rule to which there are few exceptions, and any efforts toward replacing the uterus without proper treatment of the appendages should not be attempted. Here, however, effect is frequently mistaken for cause, and much time wasted in attempting to obtain an anatomical cure, which, however successful, will not result in a symptomatic one.

Hernia of the uterus through the abdominal wall, either at the medium line, or at the external ring, is of rare occurrence and usually calls for operative measures.

The lateral displacements are generally the result of disease in the adnexa, for which appropriate treatment should be instituted.

Anteflexion, so long considered a malposition, is now no longer regarded as such, but is due to a lack of development and does not concern us here, so that a passing mention will suffice.

This brings us to the congenital type, the varying clinical importance of which is so often underestimated. Caused by an error in embryonal development they are recognized by a short anterior vaginal wall, a long, thin cervix lying parallel to the axis of the vagina and close up under the symphysis pubis, and a small retroflexed, more often retroverted, fundus. Though generally free from adhesions they are not replaceable on account of the short anterior vaginal wall, that does not admit of the cervix swinging back into the hollow of the sacrum as the fundus is brought forward. A small proportion of these patients are free from physical symptoms and usually consult us for sterility.

What advice, then, should be given to women with these various malpositions? Let us consider for a moment the symptoms usually complained of. A sense of pelvic discomfort with more or less pain in the pelvis, back and the lower abdomen and thighs, aggravated by exertion, and worse at the menstrual period, accompanied by a more or less constant leucorrhea, progressive nervous manifestations and sterility, or the occurrence of frequent abortions in the early months of pregnancy, several, or many of which may be present in any one case. What degree of success can we reasonably hope to attain by the operative treatment of these symptoms? Some of them are very often the result of other pathological conditions not directly connected with the uterus, as the sense of pelvic discomfort complained of where the support of the pelvic diaphragm is lost as a result of exten-

sive lacerations, or even widely removed from it, as backaches consequent upon a displaced kidney. In the first instance repair of the perineum may accomplish a cure, but in the second any operation on the perineum or uterus would prove futile. The leucorrhea is seldom cured by operation and generally only yields to a more or less prolonged treatment by the application of caustics directly to the interior of the uterus and cervical canal.

Starting with the dictum that no case should be subjected to operative treatment merely to effect an anatomical cure, relieves us of a lenghty consideration of the uncomplicated retrodisplacements causing no physical symptoms. These in married women should be replaced and a cure attempted by the use of the pessary but should be a *noli me tangere* in the virgin.

In the adherent cases the result, as a rule, of pelvic peritonitis primarily involving the tubes and ovaries there will generally be found a marked train of symptoms increasing in severity, as the condition is a progressive one. Here operative treatment should be advised, though the occupation of the patient should be carefully considered before reaching a decision. Women of the leisure class who are not called upon to put forth any great or continuous physical exertion may be oftentimes readily relieved of their symptoms by office treatment, whereas women whose lives are more laborious, requiring them to be more or less constantly on their feet, receive little or no benefit from such means.

When the retrodisplacement is a congenital one the symptoms are not infrequently due to a lack of development in the pelvic organs rather than to the displacement *per se*, so that its operative correction is not always followed by a cure, although the symptoms may be much relieved, and if the patient is not too advanced in years, restoration to a normal position often results in a favorable further development. These cases being an error in development are seldom free from symptoms, and would in all probability derive the greatest benefit from an operation performed soon after puberty, but they do not generally come to our attention until later years when progressive suffering, or several years of unfruitful married life, leads them to seek the cause.

The most important symptom, from a social standpoint, and one for which we are so often consulted, is that of sterility, absolute or relative, and it is here that the greatest difficulty is at times encountered in deciding on what advice to be given the patient.

That the retroposed uterus, when not an absolute hindrance, can offer extreme difficulty to conception is true, and especially so in those cases where the cervix points forward toward the anterior vaginal wall. Here the mechanical obstruction to the entrance of the spermatozoa alone suggests an important causative element, and the accompanying state of venous congestion in the uterus offers a particularly unfavorable soil for the cultivation of a fertilized ovum. When conception does take place, abortion during the early months is of frequent occurrence, and this is especially true of those cases complicated by peritoneal adhesions, often so firm as to limit the excursion of the pregnant uterus to the pelvis, thus bringing on an early abortion by the inability of the uterus to enlarge sufficiently for the accommodation of its growing fruit. Where there are repeated abortions in the early months of pregnancy this condition will very often be found to be the cause, and an examination of the pelvic organs before the end of the second month is of extreme importance.

When the retroposed gravid uterus is uncomplicated by adhesions it should be replaced, and a retaining pessary worn until the fundus is well up out of the pelvis, and all danger of incarceration past. Where complicating adhesions make this impossible their operative separation with correction of the displacement should be advised as the only treatment consistent with good surgery and good morals; the interruption of the gestation by emptying the uterus, so often practised, is open to severe censure and need only be mentioned to be condemned.

When the retroposed pregnant uterus does not abort in the first few months—but continues to enlarge until the abnormally situated fundus becomes incarcerated under the promontory of the sacrum its immediate release should be accomplished, for the condition is a serious one which, when allowed to persist, always results in the death of the fetus and is often attended by disastrous results to the patient; vesical complications, especially gangrenous or membranous cystitis leading to death are of not uncommon occurrence.

The conclusions that I wish to draw then, from this necessarily limited consideration of the subject, may be summarized as follows:

I would divide all malpositions of the uterus into three classes: Operative, non-operative and questionable.

The operative class may be further divided into those requiring immediate attention, and those in which it is safe to await for a reasonable time the convenience of the patient. Under the first subdivision come those cases which may be classed as emergency ones, namely—inversion, incarceration and irreducable prolapse of the gravid uterus, and adherent gravid retrodisplacements with symptoms of threatened abortion. In the second subdivision are the complicated retrodisplacements, and hernia of the uterus either through the vagina or through the abdominal wall. In the non-operative class I would include the uncomplicated retrodisplacements, and reducible hernia of the gravid uterus.

The questionable class embraces the congenital type of cases, and retrodisplacements with

symptoms relieved by reduction, but where the use of a proper pessary fails to accomplish an anatomical cure, or in young virgins where its use is unjustifiable. The congenital cases being errors in development are each a law unto themselves, and require a most thorough investigation.

Where the retrodisplacement is the only abnormality present, the patient is often greatly benefited by an early operation, but where other marked evidences of maldevelopment exist the prognosis is unfavorable.

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CARBOLIC ACID GANGRENE.

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THE peculiar integumental changes which occasionally manifest themselves in certain cases after exposure to the action, externally, of even mildly diluted solutions of carbolic acid, have prompted many surgeons to discard its use in surgical practice, excepting for the immersion of instruments which, as is known, are tarnished when placed in a solution of the bichloride of mercury. The public, and unhappily many pharmacists and practitioners of medicine, do not appreciate thoroughly the grave dangers residing in the daily and popular use of carbolic acid solutions as a routine application to open wounds and injuries of other character. Injuries to the fingers and toes, trifling in extent, to which carbolic acid in various strengths of solution is applied too freely, in some cases, have resulted in gangrene of the parts to which the acid is applied. In this connection, gangrene due to injury, calling for the use of carbolic acid, is excluded. As remote as 1871, Tillaux (*Bull. Gen. de Therap. Med.*, etc., Vol. LXXXI, p. 275) reported three cases of carbolic acid gangrene, and since that time writers in various countries have at frequent intervals reported similar cases. Theodore Billroth, some years later, in a letter published at Vienna, cautioned against the too indiscriminate use of this irritant, and said that he had at that time seen four cases in which the fingers, which had suffered a most insignificant injury, became gangrenous through the uncalled for external application of carbolic acid. These results are due to the unfortunate popularity that carbolic acid has attained in the public mind as an antiseptic for the treatment of wounds, and also to the faith which physicians and pharmacists place in its omnipotence. In the face of all this, the misuse of carbolic acid continues, and it is with the object of attracting further notice to this deplorable and indiscriminating use of a toxic agent, that the author desires to add to an already long list a case of carbolic acid gangrene which came to his notice recently.

Case.—Mr. George T., aged thirty years; by occupation a laborer in a coal yard; family and personal history negative. Addiction to beer-drinking to a slight extent only habit. While at work, "scraped" end of middle finger of right hand on a sharp-pointed nail, bled freely, necessitating bandaging. Consulted his physician, who ordered a two-per-cent. solution of carbolic acid, to be diluted with an equal quantity of water, and then wrapped around finger. Patient did as directed, keeping the bandage around the parts well-soaked with the solution. On removing the dressings twenty-two hours thereafter, finger was found to be discolored and shriveled as far in extent as the bandage reached, bandage was loosely applied, no constriction at any point. Case was referred to me for further treatment, in conjunction with family physician. Patient had faithfully applied the one per cent. solution of carbolic acid, to parts as far as the solution of integument can be noted in the accompanying illustrations. Urinary examination showed absolutely normal constituents; no sugar, no albumin, no casts, sp. gr., 1.018; quantity in forty-eight hours, 44 ounces. With the assistance of the family physician, amputation at the middle of the first phalanx was performed, under ether. The anteroposterior flaps united perfectly in ten days. Illustrations show perfectly the extent of the gangrene, on palmar and dorsal surfaces of finger.

Francis B. Harrington, visiting surgeon to the Massachusetts General Hospital, in an excellent article published in the *American Journal of the Medical Sciences* for July, 1900, reviews the entire subject of carbolic acid gangrene as presented up to that date, and adds 18 cases, which he has discovered or seen through others at the Massachusetts General Hospital, to 114 cases, the reports of which he found in the medical literature of various countries. He appends a list of bibliography on the subject covering sixty monographs appearing in the literature up to that date. Since the publication of Harrington's paper, many isolated cases have been reported by Lucas-Championniere, Bindi, Romeick, Vertner Kenerson, E. Dunster Kremers and George E. Shoemaker. There are, however, many cases which are not recognized as carbolic acid gangrene, and these, with many recognized cases, are never reported. The lenient restrictions governing the selling of carbolic acid, in retail or bulk (in great part, corrected by recent legislation), the ambiguous instructions as to its proper employment, and the ignorance on the part of the public in general as to the dangers lurking in its indiscreet use, are responsible for the seemingly too frequent occurrence of carbolic acid gangrene. The external application of carbolic acid has also produced severe constitutional disturbances and has even destroyed life. This is due to the fact that carbolic acid possesses real penetrating power, a fact evidenced by the numerous cases of constitutional poisoning reported at various times. The continual use of the solution may and does give rise to headache, vertigo, fainting, vomiting, ir-

regular breathing, and a thready pulse.[1] One of the first symptoms of carbolic acid poisoning is the characteristic olive-green coloring of the urine, when the acid is applied externally, later the urine may respond to the albumin tests, and carbolic acid be even recovered from the same by analysis. In severe cases there are bloody diarrhea, hemoglobinuria, suppression of urine, contracted pupils, clonic muscular spasms, and collapse leading to a fatal termination. Individual disposition probably plays a part. Infants and young children are especially susceptible to the toxic action of the drug. Very distressing and alarming constitutional symptoms, and even death, have followed the application of a mild solution to minor wounds, such as the wound of circumcision. It is foreign to the purpose of this article to take up this phase of

Fig. 1.

Carbolic acid gangrene. Dorsal surface of finger.

the subject, but we shall review the question of disturbances as a result of the local action of carbolic acid, *i.e.*, mortification or gangrene.

Experiments have proven that the use of the full strength of the acid is not necessary to produce gangrene. Indeed, Joseph Levai (*Pest. med. chir. Presse*, Budap., 1897; *Ungar. med. Presse*, Budap. 1897, has shown that strong carbolic acid is less dangerous, for it forms a scab which restricts penetration of the irritant drug into the deeper tissues. When applied to the skin, the superficial layer of tissue is coagulated and thus absorption of the drug is prevented. It produces great local anesthesia, extending inward for some depth, to the tissues with which the acid has not come in contact. This superficial slough is cast off, and thus complete mortification is less likely to occur under these circumstances than when dilute solutions of the acid are employed. As Harrington says, the result depends on the strength of the solution, the manner of application, the length of time of application and the power of resistance of the individual. However, it is probable that the strength of the solution has less do do with the unfortunate result than the length of time of the application and the thickness of the epidermis. It is worthy of comment that in Harrington's cases women made up four-fifths of the total number. It is needless to state that mortification does not always follow the use of carbolic acid solution as a wet dressing.

The local toxic effect of carbolic acid has been studied in a very exact manner by a number of writers, among them, Prudden, Körtum, Frankenburger, Lucas-Championniere, Levai and Housel. Prudden (*Am. Jour. Med. Sciences*, January 1881) "observed under the microscope the effect upon living leucocytes and ciliated cells, of soakage in varying solutions of carbolic acid. Under soakage in solutions between $^1/_{32}$ per cent. and $^1/_4$ per cent. strengths, ameboid and ciliary movements slow up, or stop, but resume activity upon withdrawal of the carbolic fluid and its replacement by a normal one. Under soakage in solutions of one to five per cent., however, the bodies under observation speedily lose their power of movement, without possibility of resumption, and their protoplasm soon suffers disintegration. Applied to the human skin, comparatively weak solutions, such as one to two per cent. solution used in surgery, objectively cause a whitening and shriveling of the cuticle, and subjectively a conjoint numbness and prickly sensation, followed, if the application be prolonged beyond a few minutes, by smarting. These painful sensations Squibb declares to be aggravated by elevating, and alleviated by depressing the affected part,—phenomena contrary to those which usually obtain under circumstances of painful irritation. After withdrawal of the application the skin gradually assumes its normal appearance and tactile sensibility, recovery from the numbness, however, being slower than the return to natural appearance. Touched with the undiluted acid, the skin immediately whitens, while the circumjacent parts redden by irritation. Sharp pain, passing over into numbness, is experienced, the pain gradually subsiding after an hour's lapse, and the surface presenting the dry, scaly exudation so often seen on surgeons' hands in the days when operating under a carbolized spray was in vogue" (Reference Handb. of the Med. Sc., Vol. II).

Körtum (*Intern. klin. Rundschau*, No. 52, 1888) attempts to explain the gangrene resulting from the continuous application of carbolic acid solution on the ground, first, that carbolic acid has a toxic effect on the nerves, and secondly, that a watery solution of the acid is easily absorbed by the tissues, and then exerts its familiar property of coagulating albumin. The

1 Herold's Legal Medicine, J. B. Lippincott Co.

chemical first irritates, then paralyzes the vasomotor nerves, and it may exercise the same effect on the sensitive and trophic nerves, for there is at first, upon applying the acid, an acute smarting and burning sensation, followed later by anesthesia. He believes that it is very probable that the trophic nerve disturbances play an important part in the production of gangrene. As has already been stated, watery solutions of the acid are easily absorbed and penetrate deeply into the tissues. The property of coagulation of albumin by the acid also plays a part in the causation of mortification. Under favorable circumstances there is a paralysis of the vasomotor nerves, and a consequent slowing of the blood current.

Frankenburger's (quoted by Harrington) explanation is worthy of consideration. In 1890, he conducted a number of experiments upon

Fig. 2.

Carbolic acid gangrene. Palmar surface of finger.

animals, and proved that dilute carbolic acid solutions would produce complete destruction of the parts to which they were applied. The subcutaneous tissue showed considerable transudation. From these studies, he concluded that the chemical acted directly upon the red and white blood corpuscles, causing stasis and thrombosis. This in turn prevents nutrition and thus produces death of the part. He believed that the local effect upon the nerves was of minor consideration.

Levai (*Gyo-gyszat.*, Budap., 1897, Vol. XXXVII, pp. 75 to 94; *Pest. med. chir. Presse*, Budap., 1897, Vol. XXXIII, pp. 177 to 183; *Ungar. med. Presse*, Budap., 1897, Vol. II, p. 172) doubts the conclusions of Körtum and of Frankenburger. His experiments make it seem probable that the action of carbolic acid is not a specific one, but is analogous to that produced by 5 per cent. solutions of hydrochloric, nitric, sulphuric and acetic acids and of caustic potash when applied to a part by means of a saturated compress for about twenty-four hours. He showed by histological examination that in the beginning, each of the above chemicals properly diluted and applied in the form of moistened compresses, produces the same effect: the epithelial layer becomes edematous and loosened. "As soon as a way has been made to the deeper layers, each agent produces in a different way the same result, namely necrosis of the living tissue." This mortification takes place in layers downward, and exercises its effect not only on the nerves and vessels, but involves all the tissues of the watery solution on the skin causes its ultimate maceration, and thus penetration of the chemical becomes easy and rapid.

Championniere says that in the cases observed by him the damage usually took place in localities where the circulation has always been feeble. He attributes the destruction to the toxic effect of the acid on the cutaneous nerves causing a trophoneurosis,—an impaired nutrition due to defective nerve influence.

As has already been stated, clinical observations prove that it is the mild solutions of carbolic acid which are the more dangerous, since they cause no pain and in consequence their effect is a decidedly more insidious one. Peraire (*Jour. d'Anat. de Paris*, February 5, 1896) records an instance in which a child ten years of age lost the second and third joints of a finger after twenty-four hours of exposures to a compress saturated with a one per cent. solution of carbolic acid. Levai reports a case where gangrene followed the application of a two per cent. solution for twelve hours. In some cases, mortification has resulted in three or four hours where the solution was in a more concentrated form. Thus Körtum (*Inter. klin. Rundschau*, No. 52, 1888) records such an instance in which the last phalanx of the thumb was destroyed after a single application of an eight per cent. solution. He reports other cases where one or two per cent. solutions produced gangrene, and further speaks of an interesting case where multiple spots of gangrene appeared in the hand after the application of compresses moistened with a two per cent. solution of carbolic acid and applied for several hours. Vertner Kenerson (*New York and Phila. Med. Jour.*, February 4, 1905) reports a case where the solution, at first, was 1 in 50, and then later changed to 1 in 100. In this instance, the wet dressing was covered with oil silk. A patient was ordered to apply a two per cent. solution of carbolic acid for four hours for the purpose of aborting a felon, and was instructed to remove the dressing as soon as the skin was blanched. About five hours later, the finger was reported as blanched, but "pricking stone." Orders were then given to

reduce the strength of the solution to 1 to 100, *i.e.*, one per cent. About this time a friend of the patient suggested covering the wet dressing with oil silk, which was done without consulting the physician. The application was left *in situ* over night. The following day parts of the finger were dusky, and while attempts were made to care for return circulation by placing the finger in a warm poultice (to some extent, it did improve in the proximal joint), dry gangrene followed and it became necessary to amputate at the tip of the first phalangeal bone. Kenerson concludes his report by saying: "Carbolic acid is the best penetrating disinfectant in those infections that do not proceed from an open wound, as it has real penetrating power through unbroken skin, but it should never be covered with any material that will prevent evaporation, and should be applied only with a light dressing."

E. Dunster Kremers (*Jour. Am. Med. Ass'n*, August 27, 1904), Lucas-Championniere (*Rev. gen. de clin. et de therap.*, Paris, 1903), F. Bindi (*Clin. med.*, Pisa, 1903, IX, pp. 103 to 105), Romeick (*Zeitschr. f. med. Beamte*, Berl., 1903, XVI, p. 124), George E. Shoemaker (*Am. Med.*, July 9, 1904), Du Castil and Nocton, "Gangrène du mamelon d'origin probablement phèniquée." *Bull. Soc. franc. de dermat. et syph.*, Paris, 1904, XV, 28, are among those who reported cases since the publication of Harrington's paper. The records of all these cases are so much alike that a detailed report of each would be a needless repetition.

Experiment has shown that the gangrene is not due to tight bandaging or to compression, but simply to the action of the carbolic acid. Tight bandaging undoubtedly encourages the tendency to this retrograde process, but clinical experiences have shown that the gangrene does not develop primarily from this cause. The gangrene is limited to the tissue enveloped by the moist compress, and is determined by a sharp line of demarcation, as is shown in the illustrations accompanying this article. This has been demonstrated by a case of Levai, where the last phalanx of a finger, which was not covered by the dressing, escaped the gangrenous process and presented a normal appearance and bled when pricked with a pin; the finger nearer the trunk was quite black and without sensation.

In cases of carbolic acid gangrene, the history, as a rule, is as follows: The patient usually comes for treatment with the history of having treated a cut, bruise or a felon with a solution of carbolic acid or with an ointment containing small quantities of the drug. It is reasonable to assume that solutions of carbolic acid usually are no stronger than five per cent., since water, which is the usual solvent, will practically only dissolve about five per cent.[1] Hence, most cases of gangrene due to this acid, result from the application of solutions varying in strength from one to five per cent. (one per cent. in my case, here quoted). The story reveals the unfortunate error of many druggists, when selling the acid without a physician's prescription, in not sufficiently cautioning the customer regarding the danger of the continuous application of the drug. It may be a physician, unhappily, who is found culpably derelict in his duty in a matter of this kind.

Carbolic acid, either in the form of a dilute solution or of an ointment, is the agent that occurs to the mind of most people as the proper remedy for use as an antiseptic. This, and the want of knowledge as to its judicious use, is the reason for the frequent occurrence of carbolic acid gangrene. Upon examining the affected member it will be found dead black in color, somewhat shrunken, devoid of sensation and dry. A sharp line of demarcation is established, and there is no odor. Hopeless disorganization is readily recognized, and the only therapeutical measures at our disposal are amputation or disarticulation. An alcoholic dressing may be tried, with the hope that it may destroy any carbolic acid remaining in the surrounding partially dead tissue. It might be beneficial to apply a dressing saturated with lime water, if the case is seen soon after the removal of the carbolic acid.

Prophylaxis.—Lucas-Championnière advises the use of glycerin in combination with carbolic acid rather than the usual aqueous or alcoholic solutions. The best prophylactic consists in the avoidance of the use of this chemical for wounds, and to resort, in its stead, to some of the many other excellent drugs for this purpose. The very best, according to the *International Journal of Surgery*, is a lotion known under the name of Burow's solution, which is easily prepared by dissolving 28 grains of lead acetate crystals in water, pouring this solution into a vessel containing a solution of 70 grains of alum, and then diluting up to 800 grams. The resulting precipitate of lead sulphate must be thoroughly filtered out. This may be further diluted when required for moist compresses, the latter being well covered with rubber tissue or oil silk to prevent evaporation. "Although such unfortunate results (referring to Dr. Harrington's paper in *Am. Jour. Med. Sciences*, Vol. CXX, p. 1) from the external application of carbolic acid have been known for many years past, it needed just such awakening as this paper furnished to call attention to the results of too recklessly using this valuable agent. It is well known, however, that gangrene does not invariably follow from such applications, but this fact shall not deter those who have occasion to recommend or actually make use of such solutions from advising caution, and especially to keep it out of the reach of children. The general consideration which has been given to this subject has developed the fact that many surgeons cannot quite agree with Dr. Harrington's general advice to use the other substitutes for wet dress-

[1] Herold's Legal Medicine, J. B. Lippincott Co.

ings, for the beneficial results have been marked in too many cases with carbolic acid solution. They would rather call for more care in its use."

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THE MEDICAL PROFESSION IN ITS RELATION TO THE ELIMINATION OF COMMUNICABLE DISEASES.[1]

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EVERY thought has a literal value. In the degree that thought is focussed and given direction is it effective in the work it is sent out to accomplish. We should not fail to realize that however small our contribution, its impulse may be felt far and near.

Those of us who, from year to year are honored, through this high office, in being chosen to speak to our fellow practitioners, must be regarded mainly as torch-bearers, receiving light from those whose torches have burned brightly, and placing a still larger flame in the hands of our successors. Every act of a physician's life inscribes itself in the memory of his fellows. He must be a light to illume, to be prepared to scatter sunshine where clouds and shadows reign.

The conscientious physician is attached to just principles and governed by the highest motives in doing good. His work is never ending, and his patience inexhaustible. Moreover, he owes allegiance primarily to the general welfare of the community and to moral and intellectual convictions. It is heredity to devote whatever talents may be his to safeguarding the public health and to advance the best interests of his profession. To learn the truth with him is to proclaim it. To this spirit of self-sacrifice and scientific zeal devoted to humanity there is no parallel.

There is a spirit of inquiry, a thirst for knowledge, pervading our profession, and speculation is displaced by fact. One of the most important elements of success in life, and even of happiness, is a trained habit of observation: the power of accurately noting and comparing. Invaluable discoveries have been made by simply observing and reflecting on what was going on under one's eyes. Observation and research are prime factors in the wonderful advance and revolutionary changes constantly going on. Theories advanced by one are overthrown by another unless they stand the crucial test of successful repetition. As science is so abundantly demonstrating to-day, the things which we see are but a small fraction of the things that are. The real vital forces at work in the world about us are not seen by the ordinary physical eye.

There are two classes of workers in the profession of medicine,—those engaged in the discovery and those engaged in the practical application of scientific truths. Both of these realize the immensity of the field, the danger of propagating error, the gradual development and practical application of medical knowledge, and the agony of an argument with ignorance, prejudice and superstition.

Prophylaxis, the science of the preservation of health or the prevention of disease, is based upon our knowledge of the causation of disease. To prevent the latter, one must first grasp somewhat of its nature and origin. What has been accomplished in this direction within the past quarter of a century far transcends the wildest speculation of the theorist of but half a century ago. During this period, medical science has turned empiric chaos into scientific order. A complete revolution has been brought about through bacteriology, and renewed zeal has been awakened in various directions to curtail or prevent disease and thus tend to increase the average duration of life.

To acquaint laymen with the aims and possibilities of the medical profession in relation to preventive and sanitary measures is a problem of gradual solution. There is a natural conservatism possessing the human mind, which makes it slow to grasp the import of revolutionary facts. Until the public is educated through us to understand its importance and possibilities, and necessary laws enacted and enforced, preventive medicine will never be accorded its proper place as a scientific branch of medicine. The slow working of natural laws tends to bring about reforms in all things, but it should be the accepted duty of every intelligent citizen to endeavor to assist in educating the masses. The public as well as our patients should be taught the nature of infection and contagion as applied to various diseases, and they should be persuaded to observe ordinary sanitary precautions. Where the will fails the law should step in.

Any measure which will preserve the resisting power of the individual against disease is essentially based upon as sound a principle of prevention as that which, for the same reason, endeavors to keep disease away from the individual by preventing him coming in contact with cases of that particular affection. Even the seeming miracles of modern surgery are due as much to the knowledge of the means by which inflammation and suppuration may be prevented as to the skill of the operator.

Disease expresses the reaction of the organism, not the action of the germ; the germ is no more important than the tissue it invades. Whatever the character or proportion of infective or contagious diseases existing, the danger in a community is directly proportional to the number of cases existing. The more perfect the intimacy the greater the risk, the more frequent the infection. There is at present a strong belief that most epidemics of the various infective diseases are spread by mild cases which go unrecognized, rather than by the mediation of a third party.

[1] Address delivered at the thirty-second Annual Meeting of the Florida Medical Association, held at Jacksonville, April 19, 20, and 21, 1905.

We are to-day in possession of a satisfactory working theory of the nature of infective disease, and of the factors involved in natural resistance and acquired immunity. Our wonder knows no bounds regarding these, so marvelous is the precision and scope of the protective reactions, concerning which so much has been brought to light in recent years and which lend themselves well to comparative studies. In natural immunity, there exists in certain families or species an inborn resistance to certain infective germs. The reactions of natural immunity, however, may not neutralize quickly enough the toxins nor destroy promptly enough the invading organisms Hence the intervention of products of artificially produced biologic reactions. Yet methods of artificial immunization will never enable us to dispense with the observance of general and proper hygienic precautions, which increase the resistance of the tissues.

When success attended the production of specific antitoxins for diphtheria and tetanus an important step was taken in serum therapy and immunization. Yet the failures that have been met with in the attempts to produce antitoxins for other diseases have only stimulated investigators the more to a closer study of immunity and of the means by which bacteria cause disease.

The greatest medical triumphs have been won in the realm of the infinitesimal beings that, unseen, swarm and multiply within and about us. Bacteriology was born of philosophic doubt as to spontaneous generation. It has furnished a solid basis for preventive medicine, capable of conferring more and more benefits on mankind as its principles receive wider application. The spirit of research has become so diffused as to penetrate into almost every department of human knowledge and activity. With a recognition of its usefulness and its necessity as an element of progress, bacteriologic research is proving an indispensable factor in the study of those important problems in medical science so intimately associated with the health and happiness of mankind.

The laboratory has, in fact, become indispensable in the daily life of the progressive physician, technical and positive aid being thus offered us in individual and general diagnosis, through bacteriologic and chemical examination. The laboratory gives facts, and it rests with the clinician to interpret them. We have now, in this country, various institutions promoting individual research toward advancing the science of medicine; such are the United States Marine Hospital Service Laboratory, the Carnegie Institution, the Rockefeller Institute, the Memorial Institute for Infectious Diseases, and the William Pepper Laboratory of Clinical Medicine. To these may be added the Harvard University Department of Research, and the Bacteriological Laboratory of the New York City Board of Health.

No field for medical research is more promising for investigation than that of the composition and chemistry of the blood. Within the past few years much attention has been given to it, and in at least a half dozen diseases does a diagnosis rest entirely on the blood examination. In the establishment of a bacteriological laboratory, our efficient health officer and our active and enterprising State Board of Health have taken advantage of the necessities arising in connection with its sanitary work. The advantages which the laboratory holds out, moreover, to every member of the medical profession, through the generous and gratuitous privileges of the board, cannot but commend itself to every one of us. It is pleasing to note the steady growth, the influence and increasing confidence in the laboratory and its findings, and it is with commendation that I refer you to the instructive annual report of the bacteriologist, and in addition, of the State Board of Health. The physicians throughout the State, more especially those of the larger cities and towns, now generally avail themselves of the proffered opportunities tending to a positive or negative diagnosis, through bacteriologic or pathologic examination.

The perfection of bacteriological methods in relation to typhoid fever, that of cultivating the bacilli from the blood, urine and stools, and the Widal reaction,—these have made possible the induction of a positive diagnosis within the first week or ten days usually. The lightness with which gonorrhea, a disease so prevalent, so contagious and so fraught with dangers to both sexes, is viewed by the public is most singular. The idea that public interests will be furthered by a recognition of the dangers of gonorrhea, is, as yet, an unfamiliar thought to the laity. Yet it is only within recent years that they, through repeated warnings of medical men, have become aware of the perils of tuberculosis. Regarding the latter, the greatest scourge of the human race, which is tolerated and engages general sympathy, the fatal sense of the lack of need or uselessness to combat the contiguity risk still seems to dominate many families in which such disease has made its appearance. The experience tables of life insurance companies, which are the only safe and reliable guides, based on many thousands of consumptive deaths resulting in claims for insurance, show that the families tainted with tuberculosis furnish, up to the age of forty, nearly 50 per cent. more deaths than families not so tainted. Life insurance companies therefore should, in my opinion, take an active and serious interest in preventive medicine, in that they profit by every advance in medical discovery and progress. The activity of boards of health in educating the masses as regards the real character of tuberculosis, has not only brought the disease more and more under control, but has markedly decreased the death-rate, the greatest decrease being shown by New York City, as a result of active administrative control through the energetic

efforts of its enlightened board of health. There should be established in Florida, in one or more favorably situated country districts, available sanitaria, under the supervision and control of the board of health, for the care of early and incipient cases of tuberculosis. Such care not only removes the individual as a source of danger to others, but also affords the best chance for recovery.

And now a word as to schools, in relation to communicable diseases. It is undeniable that the school is a patent factor in the propagation of disease, and under many conditions found, a train of physical ills are consequent that seem to be the price the child must pay for its education. School children are of a susceptible age, and wherever a number of children are brought into close contact the dangers of dissemination of communicable diseases is materially increased. While it is impossible entirely to eliminate all diseases from the school, yet its decided mitigation is entirely within reach. A systematic daily medical examination is a demand made by the modern recognition of preventive medicine, and its full significance is becoming more widely appreciated as its results become more apparent.

The subject is one of no limited extent. Every individual, physician or layman, should take an interest in anything tending to aid in preventing sickness or in avoiding contact with another having a communicable disease. The State should realize also that health is a condition of citizenship, and protection of the health of its child population implies a better class of citizens for the future. Health officers cannot rise far above the standard of culture of those who provide the means for administering the law. By improvement of our public health service will the communities in general receive the benefits to which they are entitled by virtue of our advancing knowledge as to the origin and transmission of disease.

MEDICAL PROGRESS.

MEDICINE.

Cancer of the Uterus.—J. A. SAMPSON (*Journal A. M. A.*, May 20) takes up the subject of uterine cancer, more especially that of the cervix, with special reference to the importance of early diagnosis and treatment. It is of importance to the medical profession, first on account of its frequency, it being the most frequent primary form of the disease; second, because it occurs mostly in middle life; and third, because of the distress and suffering it produces. With an early diagnosis a large percentage of cures is possible, but on account of ignorance and neglect most operable cases pass into the incurable stage. Hence the importance of educating physicians, and through them the public, as to the curability and the diagnostic points for its early recognition. One early symptom easily recognized is bleeding, sometimes profuse, sometimes slight, but always abnormal, and therefore likely to attract attention. In the rare cases in which it is absent, other signs usually exist that should lead to the suspicion that there is something wrong and needing investigation. Few patients unoperated on live over three years after the appearance of this symptom, and the majority die within one or two years. An absolute prognosis can not always be made either before or after operation or from examination of the specimens removed. With present methods, recurrence is likely to take place in three-fourths of the cases operated on, but operation may still be useful as a palliative, relieving suffering and lengthening life. Although he reports here a case of apparent cure of recurrent cervical cancer, Sampson is doubtful as to the propriety of operation in cases of recurrence. The value of education in this matter is shown by the experience of the Johns Hopkins Hospital. There has been a steady increase of the proportion of early diagnosed and operable cases and of the percentage of cures, and this increase has been most noticeable among the educated and well-to-do women. Sampson refers to Winter's campaign of education in Prussia, by which the operability of uterine cancer was increased in East Prussia from sixty-two to seventy-four per cent. in one year. The need of a more radical operation in these cases is pointed out, especially in patients in good general condition, with a freely movable uterus apparently in the early stages of the disease. When the growth is apparently extensive and its removal difficult and the patient is in poor condition, unless a very thorough operation can be done, including even excision of the lower portion of the ureters and part of the bladder, taking in all the diseased tissue, he advises that nothing be attempted. In very extensive inoperable cases he would treat the symptoms and do as little as possible locally. The article concludes with some remarks on cancer of the fundus, in which the value of an early diagnosis is even greater than in cancer of the cervix on account of the lower operative mortality and the better prognosis as to cure.

Experimental Fat Necrosis of the Pancreas.—A number of experiments have been made by G. HESS (*Münch. med. Woch.*, April 4, 1905), to prove that apoplexy of the pancreas is really caused by entrance of fat into the excretory duct of the pancreas. If even small amounts of oil are injected into the pancreatic duct, the animals will die rapidly with symptoms of collapse and severe convulsions, and at autopsy the pancreas is completely or partially necrotic. If only a small quantity of oil be used, the animal may recover, since the necrotic tissue will be replaced by fibrous tissue. The necrosis is the direct result of the caustic action of the soap, which is formed by the action of the pancreatic juice upon the fat. Some further experiments were then made, to determine if fat can enter the intact papilla of Vater when there is stagnation in the duodenum. The duodenum was ligated 10 c.c. below the entrance of the duct, and the animal then fed with large doses of oil. At autopsy, the pancreas was found perfectly normal. In a second series of experiments the papilla was injured so as to enable the entrance of the fatty contents of the intestines. A glass tube was inserted, but the animal made a complete recovery, and no changes were found in the pancreas. It was only when both factors (compression of the duodenum and injury to the duct) acted together, that positive results were obtained. The animal showed extensive necrosis of the pancreas, and the entire peritoneum was the seat of many typical areas of fat necrosis. It is highly probable that many, if not most cases of so-called apoplexy of the pancreas in man, are brought about in this way; the stenosis

of the duodenum being caused by adhesions or the pressure of the stomach and the injury of the papilla by gall-stones or pancreatic stones. It is a significant fact that in many cases a history of cholelithiasis may be obtained. A moderate degree of indurative pancreatitis is rather common at autopsy and in many cases this sclerosing process may be the result of former attacks of apoplexy of very moderate degree.

Hodgkin's Disease with but Slight Enlargement of the Superficial Lymph Glands.—H. F. STOLL (*Med. Rec.*, May 20, 1905) says of this case that the following points seem of especial interest: (1) The development of acute symptoms associated with an eruption nearly four years after the beginning of the disease. (2) The slight involvement of the superficial glands. (3) The occurrence of periodical abdominal distention and tenderness. (4) The alternating periods of pyrexia and apyrexia. (5) The unusually severe anemia. (6) The disappearance of the glands before death. The general characteristics of the disease are discussed at length, and in regard to treatment it is stated that improvement of the nutrition by the rest cure and an abundance of fresh air is very important. Arsenic, either in Fowler's solution or as the sodium salt of cacodylic acid, should be given in relatively large doses. The glands should be exposed to the X-rays for a long period, and the earlier such treatment is begun the better will be the results. Removal of the glands is to be resorted to only when pressure symptoms are marked.

Early Diagnosis of Pulmonary Tuberculosis.—W. P. STUBBS (*Maryl. Med. Jour.*, May, 1905) states that little evidence is attainable by percussion and palpation in the early stages of tuberculosis. Auscultatory phenomena, while delicate, are audible to the careful examiner. An interrupted rythm, a weakened and rough inspiration are suggestive if found to persist over any definite area. General symptoms, even though slight, should be given careful attention. A slight hack, a constant desire to clear the throat, slight dyspnea, a localized pleuritic stitch, an indefinite neuralgic ache in the sternal or clavicular regions, accelerated pulse rate, capricious appetite, restlessness, night-sweats, disinclination to exertion, an afternoon rise of temperature, all should be regarded with suspicion. The tuberculin test should be used in all doubtful cases in the following way: A two-hour chart should be kept for three days before the injection. A one-half of a one per cent. solution of crude tuberculin is made in distilled water, and ½ to 1 c.c. (2½-5 milligrams) of tuberculin injected into a fleshy part of the body. A positive reaction is indicated by a rise of temperature, at least two degrees, over maximum temperature of the previous day, headache, backache, general malaise and nausea. The local signs in the chest are exaggerated at this time. If the test is negative the injection should be repeated after a two weeks' interval, using a larger amount of tuberculin.

SURGERY.

Surgical Treatment of Gastric Ulcer.—The following heads may be considered under this subject: First, the perforation of gastric or duodenal ulcer. Second, the occurrence of hemorrhage in gastric or duodenal ulcer. Third, chronic ulcer. Fourth, hour-glass stomach. B. G. A. MOYNIHAN (*Brit. Med. Jour.*, April 8, 1905) states that there are few catastrophes so awful in their suddenness and in their intensity as the perforation of an ulcer. Obviously if the patient's life is to be saved, it must depend entirely upon early recognition of the lesion. Perforation has usually been described as acute and chronic. The author has, however, found a number of cases which should justly be classified as subacute. In the acute perforation, the lesion occurs suddenly and completely and the intestinal or gastric contents flow directly into the peritoneal cavity. In the subacute form, the ulcer probably gives away almost as quickly as in the acute, but on account of its small size or to the relative small amount of material in the alimentary canal or possible to a plugging of the opening, the damage inflicted is less. Furthermore, typically in the subacute form, there is usually a certain amount of pain before perforation. In chronic perforation a protective peritonitis has had time to develop at the base of the ulcer. In other words, the entire lesion has been walled off. In all probability medical treatment alone cannot save any of the cases of acute perforation. For convenience of description, the author has arranged the cases of hemorrhage in four groups. In the first, it is latent or concealed, is always trivial and often inconspicuous. In the second, it is intermittent, but occurs in moderate quantity, often spontaneously and at infrequent intervals. The patient's life in this class of cases is never jeopardized from the hemorrhage, although anemia is very constant. In the third class of cases, the hemorrhage occurs generally but not always after an exacerbation of chronic symptoms. It is rapidly repeated, is always abundant. Its persistence and excess cause grave terror and will, if unchecked, be the determining cause of the patient's death. In the fourth series of cases, the hemorrhage is instant, overwhelming and lethal. In dealing with these hemorrhages, two plans may be followed. By the first the surgeon searches for the ulcers and deals with them directly. By the second he deals with them indirectly by performing gastro-enterostomy and thus giving the ulcer an opportunity to heal. First thought would suggest that the primary method should be the ideal one. It has, however, been definitely shown that in many cases it is utterly impossible to find the bleeding point. Furthermore, once found, it has been shown to be often impossible to check it. Again the bleeding is very frequently from a multiple source. Gastro-enterostomy is curative of hemorrhage for the following reason: It immediately stops the distention of the stomach. The author has not had a single case in which the arrest of the hemorrhage has not been permanent, but many prominent surgeons including Kocher, have had failures. This Moynihan ascribes in every case to the use of the Murphy button, which has fallen back into the stomach and thus continued the traumatism to the ulcer. The symptoms caused by chronic ulceration are most variable. Dyspepsia and chronic ingestion so-called are both due undoubtedly in a majority of cases, to a mechanical change in the stomach, the result of chronic ulceration. The symptoms are determined very largely by the position of the ulcer, but size and extent of the lesion are also determining factors. Should the ulcer, for example, lie in the body of the organ, it may in its contraction give rise to an hour-glass stomach. The best symptomatic results are obtained by gastro-enterostomy in those cases where the ulcer is located at or near the pylorus. Probably there is no operation in all the domain of surgery comparable to the results obtainable in these cases. As time goes on, it will undoubtedly be shown that all cases of recurring dyspepsia should be treated by surgical methods. The author has performed gastro-enterostomy in 153 cases with two deaths.

Pendulous Abdomen.—To overcome the flabby, sagging condition of the abdomen seen in women fairly well advanced in life, in women who in earlier years were corpulent with prominent abdomen, J. P. Crevelling (*Buffalo Med. Jour.*, May, 1905) suggests the removal of an oval-shaped portion of the abdominal wall from the umbilicus to the pubes. The entire thickness of the abdominal wall being removed. The author reports two cases in which all symptoms due to the condition entirely disappeared after operation and the patients remained comfortable for several years.

Traumatic Tetanus.—That traumatic tetanus is attended by a high mortality is shown by Bentz (*Buffalo Med. Jour.*, May, 1905), who states that 70 to 80 per cent. of cases die. This is probably due to the delayed effect of the toxin which is explained as follows: The toxin does not reach the spinal cord through the blood stream, but travels up the axis-cylinders of the motor cells, from their terminations. Sensory nerves do not transport toxin. Part of the toxin enters the nerves in the region of the wound, the rest is carried by the blood and lymph, to be later taken up by the motor nerves in other parts of the body. The toxin produces degenerative changes of the Nissl granules and protoplasm of the motor cells. The author considers the treatment under the following heads: (1) Thorough cleansing of all suspicious wounds, especially those contaminated by garden earth, also Fourth-of-July wounds. All wounds should be thoroughly freed of foreign matter by vigorous operative measures, and should be freely drained. The patient should receive an injection of 10 to 20 c.c. of tetanus antitoxin into the nerve trunk coming from that part. (2) Suitable legislative measures to prevent the manufacture and sale of dangerous toys. (3) Symptomatic treatment, including the use of bromides and other hypnotics and antitropin.

GENITO-URINARY AND SKIN DISEASES.

The Etiology of Urticaria.—While investigating the effect of various drugs on the skin, J. Baum (*Berl. klin. Woch.*, January 2, 1905) found that it was possible to produce typical urticaria wheals by the application of certain substances. The first drug which was followed by this effect was ethylenglykol, but a number of others were found which gave rise to similar appearances. After rubbing off the superficial epithelium with sand paper, the application of the athylenglykol produced a localized edematous swelling, similar to that of urticaria, which lasted from fifteen to thirty minutes. The writer also studied this phenomenon in the web of a frog's foot, and by the aid of a microscope was able to follow out the formation of a wheal. There was a temporary dilatation of the capillaries accompanied by a rapidly subsiding edema. There was no constriction of the veins, such as is believed by Una to be the cause of the trouble. There was no exudation of either white or red blood cells and no subsequent disturbances were noted. It is probable that the processes in the frog and the human skin are entirely analogous. It was also demonstrated that the reaction varied with the individual animals, which also seems to correspond with the fact that a particular disposition is necessary for the production of this lesion, which in the human subject may be designated as an idiosyncrasy.

Nutritive Exchanges in the Dermatoses.—That many cutaneous affections are not of local origin, but are the expression of some constitutional disturbances, is a fact well established. An experimental study of the metabolic derangements that accompany certain dermatoses was made by A. Desgrez and J. Ayrignac (*Jour. de Physiol.*, January 15, 1905). They find that in individuals affected by the most diverse forms of skin disease, only one-third have a degree of corpulence that exceeds the average. On the other hand, general adiposity is markedly increased in 53 per cent of the cases. This fact, which is observed particularly in the eczemas, furnishes a new argument in favor of the relationship pointed out long ago by M. Bouchard between obesity and the dermatoses. The catalytic excitation (the excitation to catabolism) is increased in 89 per cent. of the cases. But, in fact, the histolytic activity (destruction of proteids) is below the normal in 90 per cent. of the patients. This reduction is most marked in alopecia, and is found in the various forms of eczema. In 60 per cent. of the cases, the ratio between uric acid and urea, which normally is 2.6:100, reaches the ratio of 3, 4 and 5:100. Likewise the quantity of phosphoric acid is increased. The last two observations suggest that the excess of uric acid is due to a relatively large disintegration of the nucleo-albumins, that is, of the nuclei of the cells.

PRESCRIPTION HINTS.

For Anemic Headache.—

℞ Ferri reducti ..... gr. c
Acidi arsenosi ..... gr. iv
Phosphori ..... gr. i
Ext. nucis vomicæ ..... gr. xxv
M. Divide into one hundred pills.
Sig. One pill after each meal.

For Subacute Prostatitis.—

℞ Tinct. opii camphoratæ ..... ℥iss
Liquoris potassæ ..... ℥ii
Tinct. lupulini ..... ℥iv
Tinct. hyoscyami ..... ℥ii
Syrupi zingiberis ..... q.s. ad. ℥iii
M. Sig. Teaspoonful in half glass of water after meals and at bed time.

For Seborrhea.—

℞ Resorcin ..... gr. xl-lxxx
Glycerin ..... ♏x-xx
Alcoholis ..... ℥ss
Aquae destil. ..... q.s. ad. ℥iv
M. Sig. Apply locally every day or every two days, gradually lessening the frequency to once or twice weekly. Two or three grains of the alkaloid quinine may be added with benefit to each ounce of this solution when the tendency to alopecia is present.

For Acute Cystitis with Hemorrhage and Pain.—

℞ Morphinæ acetatis ..... gr. iv
Tinct. veratri viridis ..... ℥i
Tinct. hyoscyami ..... ℥ii
Syrupi zingiberis ..... ℥i
Aquae ..... q.s. ad. ℥iii
M. Sig. Teaspoonful in water every four hours.

For Acute Tonsillitis.—

℞ Tinct. aconiti ..... ♏xxiv
Sodii salicylatis ..... ℥i
Spiritus etheris nitrosi ..... ℥iv
Syrupi aurantii florum ..... ℥i
Aquae destillatæ ..... q.s. ad. ℥iii
M. Sig. Teaspoonful every one or two hours during the fever.

THE MEDICAL NEWS.

A WEEKLY JOURNAL

OF MEDICAL SCIENCE.

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THE FOURTH OF JULY ONCE MORE.

ETERNAL vigilance is the price of liberty, according to the old saw so familiar on the Fourth of July, and it's only eternally keeping at it that will perhaps eventually secure a reasonable freedom from the fatal accidents which an ebullient patriotism now inflicts upon the youth of the land, in the celebration of the Glorious Fourth. Last year there was a special effort made all over the country to secure an amelioration of the sad conditions shown by the statistics of fatalities and injuries the previous Fourth. As the result of this campaign of education, in which the newspapers of the country almost universally joined, there was from certain standpoints a very striking improvement in the statistics, though from other points of view, they remained eminently deplorable. In 1903 the price paid in human blood for the fireworks celebration of the anniversary of independence was 466 dead and very nearly 4,000 injured. In 1904 this had fallen to 183 dead, though there were more injured than in the previous year, yet the figures approached only a little closer to the 4,000 mark.

The really noteworthy improvement in the statistics came in the matter of tetanus. Two years ago there were altogether 415 fatal cases of tetanus reported. Last year the tetanus cases amounted to only 105. This reduction of nearly 75 per cent. in the incidence of this dread disease is of itself sufficient reward for all the efforts that were made last year to secure betterment with regard to the celebration of the Fourth. It is unfortunate that it has to be added that the deaths from other causes than tetanus increased last year by more than one-half. It seems evident that as the result of the campaign of education the special class of tetanus-bearing fireworks were eschewed by many patriotic celebrants and forbidden by many parents. Much stronger explosives were employed in their stead, however, and from them came the increase in the number of deaths due to the accident itself, and an increase in the total number of accidents.

Will the improvement in the statistics of tetanus reported last year continue, and shall we have the satisfaction perhaps of witnessing a still further reduction in the number of deaths from this disease? Unless the educational effort of last year is kept up, it seems not unlikely that there will be a relapse of vigilance and as a consequence an increase in the death-rate from tetanus. Last year the public press campaign was directed mainly against the deadly blank cartridge which is so often followed by tetanus, and as a consequence, the injuries inflicted by these were less than they have been for many years. Another phase of the improvement in the mortality statistics, however, must not be passed over in silence. There is no doubt that as the result of better knowledge with regard to the possible dangers in such cases, patients themselves and parents recognized the necessity for prompt and thorough treatment of all wounds made by blank cartridges with the idea that tetanus must be prevented at all hazards. Until last year such wounds were considered as appropriately treated by ordinary home dressings, and encouraged to close as soon as possible. Even physicians had not before been aroused to the danger in this matter, and blank cartridge injuries were only in recent years thoroughly cleansed, allowed to bleed freely and in serious cases, prophylactic injections of antitetanus serum were administered with apparently good effect.

All extra effort in the care of these cases must be maintained this year and public attention should be called just as vigorously as before to the dangers that are likely to ensue. On the other hand, some of the additional dangers in-

curred last year must not be forgotten. Certain zealous parents inferred that they should apply rather strong antiseptics to blank cartridge wounds and the result was in some cases severe sloughing and in a few cases even permanent deformity. By many persons antiseptics are supposed to be quite sufficient to kill any germs that may be present, and carbolic acid is looked upon as an extremely efficient germicide. Some foolish mothers wrapped the fingers of children in gauze wet with solutions of 5 per cent. carbolic acid, and gangrene ensued. There cannot be sufficient warning of the danger of applications of carbolic acid even in solution weaker than 5 per cent. to injured cutaneous surfaces. The first effect of the remedy is to produce a numbness and insensibility to pain, as the result of which the escharotic effect of the remedy may remain entirely without symptoms, while it is working serious harm. Dressings wet with solutions of carbolic acid, however mild, must not be allowed to remain for any considerable length of time, particularly on the skin of young children.

It is sad to think that we have to face another holocaust this year and that probably at least two hundred children will fall victims to the foolish celebration of Independence Day. Besides this, about 4,000 others will be injured, nearly 1,000 of them in some serious way. In this number there will be eyes lost, legs and arms lost and many fingers mutilated with a lot of so-called slighter injuries. It is the fashion and nothing can be done. Physicians must, however, as far as is possible, exert all the weight of their authority to bring about such improvements in municipal legislation as will put an end to this yearly waste of life which is so shamefully without proper purpose and brings sadness into so many families.

THE SYNTHESIS OF ADRENALIN.

The valuable place which adrenalin holds in the armamentarium of the therapeutics of to-day has aroused the hope that some day a means of preparing this product of the mysterious chemistry of the body, synthetically in the laboratory, might be discovered. Apart from this commercial aspect, the artificial synthesis of this internal secretion cannot fail to have an important bearing on the broad subject of the physiology of the internal secretions.

H. D. Dakin (*Jour. of Physiol.*, May 9, 1905) has just reported his success in the preparation of a substance, which is not only allied to adrenalin, but also has the same chemical constitution. The details of the chemical steps necessary for this synthesis have not yet been published, nor has the identity of the natural and artificial products yet been accurately determined.

By a series of chemical processes not yet published it is possible to prepare from pyrocatechin a base having properties like those of adrenalin.

That this synthetic base is closely allied to the natural adrenalin, is indicated by the fact that the salts of the former show all the chemical reactions of the latter. But the natural substance is optically active, while the synthetic product is optically inactive. Both substances have the same physiological action, less than one millionth of a gram causing a rise in blood-pressure in the rabbit.

The author experimented with the various compounds that are intermediate steps in the preparation of the synthetic base, and found a progressive evolution of the peculiar properties of adrenalin.

The third in the series of synthesized compounds represented in the paper has a pressor effect which is insignificant when compared with that of its reduction product, the last in the series.

It has been possible to prepare a large number of allied ketone bases, and it has been found that their physiological blood-pressure raising effect bears a distinct relation to their structure. Thus the compounds having aliphatic groups (*e.g.*, methyl, ethyl, amyl and heptyl), have a greater effect than those having a mixed group (*e.g.*, benzyl), while those having a purely aromatic group (*e.g.*, phenyl, colyl, naphthyl), have, on the other hand, the effect of diminishing blood-pressure.

Pyrocatechin and its simple derivatives and homologues produce a distinct rise in blood-pressure. Moreover, substances in which the hydrogen of the phenol group is replaced are practically inactive.

The success of Dakin in discovering a product at least closely allied chemically and physiologically to adrenalin, if not identical with it, is certainly of profound interest to the pharmacologist, who may now look forward to the synthetic preparation of the other active principles of the ductless glands. To the physiologist, however, the results furnish a tempting subject for speculation. He beholds in them another extension of the conquest of modern scientific methods over the occult chemistry of the body.

It was Wöhler who first showed in 1828 that it is possible to prepare urea synthetically, and the progress in physiological chemistry has been such that an imitation of the finer chemistry of the internal secretions is no longer considered as beyond easy reach. From the practical standpoint, however, the artificial production of the internal secretions will bring these substances into the more extensive application which cheap manufacture affords.

SPIROCHAETA PALLIDA AND CYTORRHYCTES LUIS, SIEGEL.

At a recent meeting of the Berliner Medizinische Gesellschaft (May 17) Schaudinn and Hoffmann, as already outlined in the Medical News June 17, 1905, gave an account of their discovery of a special spirochaete—the *Spirochaeta pallida*, in syphilitic tissues (chancre, recent papules, inguinal glands, etc.). They also announced that Metschnikoff succeeded in demonstrating the same organism in the artificially produced syphilis of apes.

In this connection it is interesting to note that John Siegel, working in the Zoological Institute of the University of Berlin, has quite recently reported the discovery of a flagellate protozoon which he considers the specific cause of syphilis. His studies have appeared *in extenso* in the Proceedings of the Royal Prussian Academy of Sciences, of the current year.

Beyond this only a brief description of the organism—the *Cytorrhyctes luis*, from the pen of F. E. Schulze, the director of the Zoological Institute, has thus far found its way into the general literature.

It is stated that although it is possible to demonstrate numerous parasites in various stages of development in almost all the tissues of thoroughly infected apes and rabbits, the most striking pictures are obtained about three weeks after primary inoculation, with the parenchymatous juice of the kidneys. In this the organisms appear as actively motile, flagellated bodies, measuring only from 0.5 to 2.4 mikrons in diameter. They are fairly refractile, but can only be seen with the very highest apochromatic objectives, enforced by strong compensating eyepieces and the best illuminating apparatus. The larger forms appear as laterally somewhat flattened, pear-shaped bodies, provided with a single flagellum at each end, while in the smaller forms a flagellum is seen only at the tapering end. The organisms can be stained with a hematoxylin-azure mixture and can in this manner be demonstrated in sections of infected tissue. The larger forms then show two distinct round nuclei, while in the smaller bodies from 4 to 16 can be seen.

Further data are thus far not accessible, but will no doubt appear in the German weeklies in the near future, in the accounts of the proceedings of the meeting following Schaudinn and Hoffmann's paper, at which the main discussion of the subject was to take place.

ECHOES AND NEWS.

NEW YORK.

Appointment at St. Mary's Hospital.—Dr. William S. Bainbridge has been appointed consulting gynecologist at St. Mary's Hospital, Jamaica, L. I.

New Hospital for North Brother Island.—Plans have been filed with the Bronx Building Bureau for a new three-story hospital to be built on the southwest side of North Brother Island. It is to be of ornamental brick, 114 feet long and 73½ feet deep, and will cost $150,000.

Report of Health Department.—The Department of Health of the City of New York reports contagious diseases for the week ending June 24, as follows: Measles, 769 cases, 25 deaths; diphtheria and croup, 207 cases, 24 deaths; scarlet fever, 104 cases, 9 deaths; chicken pox, 115 cases; tuberculosis, 462 cases, 148 deaths; typhoid fever, 50 cases, 6 deaths, and cerebrospinal meningitis, 42 cases, 34 deaths. The death-rate for the week was 17.20 per thousand of population.

City Gets Its Sanitarium.—Dr. Thomas Darlington, president of the Board of Health of New York City, undaunted by his failure to secure a site for the establishment of a sanitarium for the care of New York City's tuberculosis patients in Sullivan County, has been quietly at work in the towns of Greenville and Mount Hope, Orange County, and has secured permission from the authorities of these towns to locate the sanitarium there. He has also secured options on several thousand acres of land, and it is now believed the sanitarium is assured. So quietly has Dr. Darlington worked that he had secured the required permission from the authorities and options on the lands before his object became generally known.

Autopsy Material in Paralysis Agitans Desired.—Dr. W. N. Berkeley, of 62 East Fifty-eighth Street, wishes to ask the readers of the Medical News who may be in a situation to help, if they can at any time put him in the way of obtaining some autopsy material from patients dying of paralysis agitans. The material of which he is in particular need can be removed without damage even as late as thirty-six or forty-eight hours after death. He will be glad to pay all the expenses that may be incurred, and will send a competent person to do the autopsy if it is impracticable for him to go himself. Full and grateful acknowledgment will be made of all help extended, if his present theory of the causation of the disease works out fully enough to warrant publication.

Staten Island Mosquitoes.—Some weeks ago Commissioner Darlington, of the Department of Health, appealed to the Board of Estimate for an appropriation of $10,000 to be used in exterminating the breeding

places on Staten Island. Comptroller Grout denied the necessity of the work, and, the majority of the Board agreeing with him, the appropriation was cut to $1,000. The New Jersey State Board of Health made remarks uncomplimentary to the spirit of the New York men, and their sarcasm prompted Dr. Darlington to send inspectors to investigate Richmond. They reported that $17,000 expended in a drainage system for the marsh lands would do away with the pest. The mayor would not believe so great a relief could be obtained at so small an expense, but professed willingness to be convinced. Dr. Doty was pressed into the service, and at noon on June 27 an inspection of the borough from the bay and ocean sides was made in one of the Quarantine boats. The mayor, Dr. Darlington, Assistant Corporation Counsel Hoyt, and Secretary O'Brien, made up the party. Borough President Cromwell met them at Stapleton.

The Need of Psychopathic Hospital.—Those who are interested in the establishing of the proposed Psychopathic Hospital in this city, for which the legislature some time ago authorized an expenditure of $300,000 contingent upon the gift of the site, may find an effective argument in the description of the recently established hospital in Munich, as given by Consul-General Mason, of Berlin, in a recent number of *Daily Consular Reports*. Mr. Mason says: "The modern psychiatrical clinic in Germany meets and fulfills two fundamental needs that exist in greater or less degree in every city or large town in the United States, namely, that the better facilities for the skilful treatment, care, and possible cure of cases of incipient and acute insanity; and, secondly, adequate provision for instruction in treatment and in the investigation of practical problems upon the solution of which must depend the arrest of increasing insanity among the people of the State. Its inestimable service to the community is that it provides for saving an indefinite but considerable percentage of the victims of incipient mental disease, and restores them to lives of usefulness instead of leaving them to degenerate into a menace to soceity and a burden to the state. It provides the most consummate examination and treatment at a stage of the disease when there is the most chance of averting or arresting an attack of real insanity. It detects and takes timely charge of the smaller but important class of patients who, without the knowledge of their friends, are on the border line of insanity, and liable at any time to become suddenly dangerous to themselves or others."

The Aftermath of Cerebrospinal Fever.—The *Herald* comments upon the meningitis situation in part as follows: "In summing up results many remarkable phases of the disease have been brought to light. The wonder is that the survivors should persist in living in spite of the number and severity of the successive complications. Children who became stricken in the beginning are still anxiously watched at death's door, with scarcely a hope that the valiant efforts of physician and nurse will be ultimately rewarded by the final recovery of the luckless victim. There have been no better examples of the severity and persistence of this disease than those that have shown themselves during the now passing epidemic. When spotted fever does not kill quickly, as it usually does in its acute and fulminating variety, it is apt to drift into a chronic form that may last for months, during which almost every vital organ may be in turn attacked by the virulent microbe. The marked fatality of the recent scourge has been in great part due to the number of brain complications that have been developed, producing profound organic lesions. In the majority of these death has been a mercy and saved the victim from the affections of blindness, deafness and mental imbecility. The most melancholy reflection in the present retrospect is that the medical profession, so skilled in other matters, is confessedly perplexed with many of the problems of this mysteriously periodical epidemic invasion. Apparently it has not yet been positively determined how the individual becomes infected, and through what particular channels the death dealing organism enters the system. Nor has any remedy been found as yet that can stay its ravages or check its course. If it is only a question of bad air and tenement life, some necessary preventive measures may be taken before the next visitation. But, theorize as we will, we are yet in sad need of facts. Perhaps the expert meningitis commission, if it can ever make a timely conclusion of its labors, may eventually settle the many disputed points at issue and give us that new hope for the future that we so sorely need."

PHILADELPHIA.

Elections.—Dr. Charles K. Mills, professor of Neurology at the University of Pennsylvania, was elected consulting neurologist at the American Oncologic Hospital, and Dr. Samuel McClary assistant pathologist.

Death from Communicable Diseases.—According to the report of the State Board of Health, 15,000 people died of communicable diseases last year. A few months ago a case of typhoid in Bucks County caused 54 of enteric fever in the Twenty-sixth and Thirty-sixth wards of Philadelphia.

To Study Leprosy in India.—Dr. Judson Daland, clinical professor of practice of medicine at the Medico-Chirurgical Hospital, has gone to India to study the effects of "Leprolin" at the lepra colony of that country. The improvement in the case now at the Municipal Hospital has induced him to go to India.

As a Prophylaxis for Tetanus.—The Pennsylvania State Board of Health has determined to supply physicians with tetanus antitoxin to be injected into individuals receiving wounds from blank cartridges on the Fourth of July. The dose shall be from 5 to 10 c.c. and shall be injected, preferably, near the seat of the wound.

Mule Develops Hydrophobia.—Dr. E. M. Gratchel, of West Chester, has in his possession a mule bitten by a rabid dog. The mule has typical symptoms of the disease which were first noticed about one week after the inoculation; the animal is isolated and is being watched, especially with reference to the progress of the malady.

Patient Puzzles Physician.—A man who said he was a locomotive engineer from St. Louis, entered the Hahnemann Hospital and stated he had been in Panama. Thinking that the patient was suffering with yellow fever he was isolated and a consultant sent for. At the consultation no exact diagnosis was made, but it was thought that the man was suffering with typhus fever.

Bequest.—Mrs. Pauline E. Henry, formerly of Philadelphia, and founder of the Germantown Hospital, died at her home in New York City May 15. She bequeathed to the institution named $10,000, the income of which shall be used to maintain two beds for incurable female patients, and $5,000 as an endowment fund. She left $2,000 for the Woman's Hospital to endow a "Scholarship for Nurses."

Reception of the Medical Club.—At this assemblage Dr. William S. Forbes, professor of anatomy at the Jefferson Medical College, congratulated the members of the club upon the fact that the hatchet has been

buried by the Alumni of the University of Pennsylvania and the Jefferson Medical Schools, and that a new era of cordial relations has been established. Addresses were made by Dr. Roland G. Curtin, president of the club, and by Dr. George Simmons, editor of the *Journal of the American Medical Association*.

Indian School will get no New Hospital.—Unless Secretary Hitchcock is able to induce the next Congress to be more liberal in its appropriation for the school at Carlisle, they will not get the new hospital which is so badly needed. At the last session, Congress appropriated $150,000 for general repairs and improvements and $10,000 for an addition to the present hospital. The Commissioner of Indian Affairs attempted to use part of the $150,000 to build an entirely new hospital instead of an addition, but Comptroller Tracewell decided against the scheme.

Aid for Consumptive Mill Workers.—Because their occupation exposes them to tuberculosis the mill workers of Kensington will receive free treatment at a dispensary to be organized and maintained by the Anti-Tuberculosis Society of Kensington. These advantages have been obtained through the efforts of Sister Marie Keck, a Lutheran deaconess, and Rev. C. S. Fry. A private dwelling bordering on the mill district will be selected for the dispensary and the same treatment will be instituted as has been adopted at White Haven. Dr. Lawrence F. Flick will be appointed advisory physician and Dr. W. G. Eisenhardt physician in charge of the work.

Dr. Dixon Names his Assistant.—Last week Dr. Dixon, Health Commissioner of the State of Pennsylvania, appointed Dr. Benjamin Lee, secretary of the recently abolished State Board of Health, Assistant Commissioner, and Dr. Frederick C. Johnson, of Bradford, McKean County, Chief of Division of Inspecting, Quarantining and Disinfecting. In a letter notifying Dr. Lee of the appointment Dr. Dixon wrote: "Your long and faithful service in the late Board of Health, which labored for many years for the good of humanity under great disadvantages, has given you especial fitness for the work of aiding me to establish and successfully build up the new Department of Health."

How Undertakers Can Aid Doctors.—In an address before the convention of the Funeral Directors' Association of Pennsylvania, Dr. A. C. Abbott spoke of "The Part Undertakers May Play in Preventing the Spread of Diseases." In the course of his talk he said that but few undertakers are open to criticism for failing to use proper precautions in regard to the spread of diseases, but the fact that there are a few makes it an important question. He maintains all instruments used for embalming should be sterilized, all clothing, furniture and carriages used at the funeral should be disinfected. Dr. Abbott mentioned the fact that he had heard of instances where the undertaker had observed all the precautions prescribed by law, but allowed the family to undo his work after he had gone.

Report of Diseases of Animals.—Governor Pennypacker met the State Live Stock Sanitary Board last week at Harrisburg and listened to the report made by Dr. Leonard Pearson, that rabies is prevalent in Western Pennsylvania and that dogs in McKean, Cameron, Warren and Venango counties are in quarantine. An outbreak of glanders in Lancaster County was reported. The investigations of vaccination of cattle against tuberculosis are progressing favorably, and it was stated that the procedure may be a success. With the view of establishing a permanent research station the board has taken steps toward buying a farm for the purpose. A resolution was adopted requesting railroad and express companies to make regular reports to the secretary of the board of the shipments of cattle from other States into Pennsylvania.

War on Tuberculosis.—In consequence of the visit paid by Dr. Paul Kennedy, of New York, representing the American Society for the Prevention of Tuberculosis to the Executive Council of the American Federation of Labor, the last-named organization has decided to extend an invitation to the Society for the Prevention of Tuberculosis to have a representative address the Pittsburg convention of the American Federation of Labor upon the subject of tuberculosis, its prevention and treatment. The representative will suggest plans by which organized labor may render effective work to arrest the disease in those suffering with tuberculosis. It was also decided to send delegates from the Federation of Labor to the congress and exposition to be held in New York next November, under the auspices of the American Society for the Prevention of Tuberculosis. So soon as the regulations complying with an act made lawful by the last legislature the Board of Health will request physicians to report all cases of tuberculosis. Dr. A. C. Abbott is of the opinion that much good will result, since the reports will indicate where the disease is most prevalent, so that overcrowding and filth can be prevented.

CHICAGO.

Appointment of Dr. Whalen.—Dr. Chas. J. Whalen has been appointed by Mayor Dunne to succeed Dr. Arthur R. Reynolds as Commissioner of Health of Chicago.

Officers of the Chicago Medical Society.—At the annual meeting of this society, held June 21, Dr. Chas. S. Bacon was elected President, succeeding Dr. John B. Murphy, and Dr. Frank X. Walls, Secretary. Reports were presented from the branch societies, the affiliated societies, from the Council, the Medicolegal Committee, the Organization Committee, Board of Trustees, and the Secretary.

Meeting of Association of Military Surgeons of the State of Illinois.—The annual meeting of this body was held at Danville, June 8, under the Presidency of Colonel Nicholas Senn. The Secretary is Lieut.-Col. Chas. Adams. A paper on "Influenza," was read by Dr. Chas. D. Center, of Quincy. Lieut.-Col. Geo. P. Marquis, of Chicago, read a paper on "Mastoid Operations." Col. Senn presented an abstract of an exhaustive article by him on "Iodine and its Use as a Bactericide;" while Capt. S. C. Stanton, of Chicago, demonstrated the method of physical examination of recruits. The next meeting of the association will be held at Moline.

Mortality Record.—While the June, 1905, health rate is not up to the record of June, 1904, according to the weekly bulletin of the Health Department of Chicago, the improvement during the week, measured by the mortality returns, will bring it higher than the average of the decade. For the elapsed seventeen days, the rate is 12.73; for the week, it is 12.01, and the average of the decade is 14.00. June, 1904, is the record month of lowest mortality, the rate being 11.02 per 1,000 of the population. Among the important causes of death showing decrease, the most notable are pneumonia, 18; consumption, 10; heart disease, 12; Bright's disease and measles, 8 each, and typhoid fever, 4. On the other hand, the acute intestinal diseases show an increase of 12; bronchitis, of 9, and diphtheria, of 4. Only two suicides were reported during the week —the fewest number in any one week for years, the aver-

age weekly number during the previous ten years being 7.5.

Permanent Home for the Chicago Medical Society.—The Committee on Permanent Home, consisting of Drs. Nicholas Senn, Wm. A. Evans, Frank S. Johnson and David J. Doherty, after several conferences with the officials of the Crerar Library and with the Newberry Library Trustees, the Committee came to the following conclusions: (1) That it is the intention of the Crerar Trustees to make their library the center of scientific activity in Chicago, and that, therefore, they will provide meeting quarters for scientific societies, and particularly will they so arrange their plans as to accommodate the Chicago Medical Society, both for its meetings and its popular lecture course. Such use of their building will be free as to rental, but incidental expenses will be borne by the society. (2) It is the intention of the Newberry Library Trustees to transfer its medical department to the Crerar Library. In this connection, Dr. Senn approves of the transfer of the Senn Medical Library to the Crerar, provided that it be kept as a separate unit and sufficient space be allowed to let it grow on the lines he has marked out. He intends to make it a great historical medical library—the progress of each department of medicine to be shown by a complete collection of books pertaining to it. (3) The preliminary plans of the Crerar Library are now being studied; the final plans will be decided on next winter; ground will be broken in the following spring, and the library building will be in use in three years.

GENERAL.

Massachusetts Medical Association. The following officers were elected at the recent meeting of the Massachusetts Medical Association: President, Dr. Arthur T. Cabot, of Boston; Vice-President, Dr. Frederick H. Thompson, of Fitchburg; Treasurer, Dr. Edward M. Buckingham, of Boston; Corresponding Secretary, Dr. Francis W. Goss, of Roxbury; Recording Secretary, Dr. Edward H. Brigham, of Brookline.

Dr. Kelly in London.—Dr. Howard Kelly, Professor of Gynecological Surgery in the Johns Hopkins University at Baltimore, was entertained at dinner by Dr. Macnaughton-Jones at the Cafe Monaco, London, on June 8. Immediately after dinner those present went to 20 Hanover Square, where Dr. Howard Kelly delivered to the British Gynecological Society the address on "Some Surgical Notes on Tuberculosis of the Kidney," which is published in the *British Medical Journal* for June 17, 1905.

Alaskan Medical Association.—At Nome, Alaska, the medical men of the far Northland recently met and organized the Northwestern Alaska Medical Association. There are ten or more charter members and the officers elected for the current year are A. L. Derbyshire, President; H. S. Moore, Vice-President, and W. D'Arcy Chace, Secretary and Treasurer. Several profitable and pleasant meetings have already been held. This is probably the first medical organization in Alaska and the most northerly one under the stars and stripes.

To Stop Cut Prices on Patent Medicines.—Strenuous measures are being adopted by practically all the manufacturers of the best known preparations, who are compelling all retail druggists to sign ironclad contracts not to sell the goods in question at less than a rate fixed much higher than those which have been prevailing. For some time it has been understood that goods would not be sold to dealers known to cut prices, but this was a rule easily evaded. Now, however, it is announced that the contracts will be rigidly enforced, and a system of numbered packages is contemplated to assists the manufacturer in keeping track of the dealers and their prices.

Esquimaux Obstetrics.—Last year the wife of a Bostonian at Cape Prince of Wales, was pregnant with her third child. Previous labors had been difficult. When she was in labor no physician was to be found within 150 miles. Her husband called in two Esquimaux women and explained the case. They at once made a belt of stout muslin about ten inches wide and took a turn around the patient's body at upper limit of tumor. Then a long pull, a strong pull and a pull all together and the delivery was accomplished with neatness and despatch. Everything was lovely. This is absolutely authentic asserts Dr. W. D'Arcy Chace, of Nome, Alaska.

Medical Society of the Missouri Valley.—The annual meeting of this organization will occur on Thursday and Friday, August 24 and 25, in the city of Council Bluffs, under the presidency of Dr. S. Grover Burnett, of Kansas City. The local arrangements are in the hands of Dr. V. L. Treynor, and an able corps of assistants, and this means a good time. Two symposiums, one on "Pulmonary Tuberculosis," and the other on "Diabetes," will be presented. Those who wish to contribute papers on these or any other subject, should communicate with the secretary at once, as the program will be limited, and papers will be placed in the order in which the titles are received.

Charities and Corrections.—The National Conference of Charities and Correction meeting in Portland, Oregon, on July 15, announces the following program for the evening session of July 20: Committee on Care of the Sick: "Report of Committee," by Nathan Bijur, President New York State Conference of Charities of 1905. A general report covering three phases of the dealing with the sick as follows: "Prevention of Diseases by Improved Housing, Sanitary and Economic Conditions," by Dr. Norman Bridge, of California: "The Actual Care of the Sick in Hospitals, and Care of the Sick in their Homes," by Dr. Walter Lindsley, of Los Angeles; "Convalescents: Their Care from the Medical Standpoint and Light Employment for Them," by Dr. Lee K. Frankel, Superintendent United Hebrew Charities of New York. A discussion will follow.

Bubonic Plague on Isthmus.—Reports from Panama assert that a fatal case of bubonic plague occurred at La Boca on June 23. The constant arrival of steamers from infected South American ports, which are recived at La Boca without any extra precautions, must be a source of contagion. The dead man had been working on board the British steamer Chili, which the authorities of Guayaquil would not allow to enter that port. The companions of the dead laborer have been isolated. Rats taken from the steamer Chili are now being examined at Ancon. The Board of Health of Guayaquil, Ecuador, on June 12, refused to admit the British steamer Chili, which had arrived there the day previous from Iquique, Chili, and she left later the same day for Panama. While the Chili was on her way to Guayaquil three persons died on board, and it was believed that bubonic plague was the cause of their death. La Boca is a small place about three miles from Panama, with which it communicates by a plank road.

Woman's National Sabbath Alliance Asks Cooperation.—The attention of the Woman's National Sabbath Alliance having been called to the harmful effect of overtaxing brain and nerves, resulting from incessant excitement and toil, appeals to the medical faculty for a leaflet of not more than 2,500 words, demonstrating the urgent need of a weekly mental and physical rest-day

as appointed of God, for the moral and religious welfare of man, and offers a prize of $25 for the best essay on this subject. The experience of a Christian physician is preferred. Manuscripts with the name and address of the writers in a sealed envelope, will be received until the first of November next, at the headquarters of The Alliance, Room 709, 156 Fifth Avenue, New York City. The accepted manuscript shall become the property of the Alliance, and the others will be returned when called for or accompanied by the full amount of postage needed.

A Modern Hospital for the Insane.—In a recent issue of *Daily Consular Reports,* United States Consul-General of Berlin describes the new psychiatrical clinic at Munich, "which, in all that relates to perfection of equipment and arrangement, as well as to the scientific enlightenment of methods employed, stands undoubtedly at the head of all institutions of its class in this or any other country. The edifice includes the central or administration building, with two wings, which form the front and sides of an open court or garden. In the central structure are located laboratories for pathological, chemical, and psychological studies, a fine medical library, rooms for the reception and examination of patients, and the private rooms of the director. The apparatus and facilities for every form of research connected with any question relating to preventing, detecting, and curing insanity are as elaborate and perfect as experience and up-to-date science can suggest. It has accommodations for 110 bed patients of both sexes, besides a large dispensary on the ground floor for the treatment for voluntary patients who come in at stated periods, but live otherwise at home. Although opened only a few months ago, the clinic will have treated not less than 2,000 patients before the close of its first year. For this hospital, with only 110 beds, the city of Munich, a city of 280,000 inhabitants, was willing to spend $500,000."

Hospital Interne (Male). Examination for Panama Canal.—The United States Civil Service Commission announces an examination on July 12-13, 1905, at the principal cities of each State, to secure eligibles from which to make certification to fill vacancies in the position of hospital interne under the Isthmian Canal Commission on the Isthmus of Panama. Each applicant for the Isthmian Canal Service will be required to submit to the examiner, on the day he is examined, a photograph of himself, taken within three years, which will be filed with his examination papers as a means of identification in case he receives appointment. An unmounted photograph is preferred. The date, place, and kind of examination, the examination number, the competitor's name, and the year in which the photograph was taken should be indicated on the photograph. Age limit, twenty to thirty years on the date of the examination; salary, $50 per month, with board and quarters, provided that if appointees are retained in the position of interne after one year they will be paid $125 per month. Only graduates of reputable medical schools having a three years' course will be admitted to this examination. The county officer's certificate in the application form need not be executed. Applicants should at once apply either to the United States Civil Service Commission, Washington, D. C., or to the secretary of the board of examiners. The medical certificate in Form 1312 must be filled in by a reputable practising physician. No application will be accepted unless properly executed and filed with the Commission at Washington. In applying for this examination the exact title as given at the head of this announcement should be used in the application

Civic Duties of Physicians.—At a recent meeting of the Massachusetts Medical Association Dr. Louis D Brandeis delivered a lecture on the political duties of the physician, taking as his text the failure of the city government to build the hospital for consumptives. This failure he attributes to the fact that "physicians are of no political significance," "Despite your numbers and your education, your college and your university degrees, you count as nothing politically when compared with the great leisure class employed by the street department, or, indeed, the employees of less favored departments. For you may well bear in mind that of all the $3,426,600 appropriated for various purposes in the loan bill of July 3, 1901, this $150,000 for your consumptives' hospital is the only amount which has not been expended; indeed, nearly two years ago it figured as the only authorized loan under that bill which had not been paid. That master sanitarian, Gen. George F. Waring, discovered the method of cleaning New York's streets. It was 'to put a man instead of a voter at one end of a broom.' I think the converse of that is true with respect to your movements in aid of public health. To accomplish your ends we must have a voter as well as a physician behind your effort—a vote to enforce the effort of each one of you to advance your cause. As I stated at the outset, intelligently working citizenship is essential to the success of your beneficent plans, and this intelligent working citizenship necessarily involves not merely your participation as voters in city affairs, but your organized participation. Your citizenship can be an intelligent, a working citizenship only through organization. You must connect yourself with other forces that are active for good government, and fortunately the existence of the Good Government Association affords you an easy means toward the organization of your forces. The Bar Association, the Merchants Association, the Fruit and Produce Association, and others have all joined forces in an effort to secure a better city government. Must not you do likewise in order to accomplish your ends?"

Mental Phenomena Connected with Anesthesia.—The following circular letter issued from the department of psychology, Wisconsin University: While in the deeper stages of anesthesia mental processes are usually so entirely submerged as to fall beyond the possibility of record, in the lighter stages and in the period of approach to, and most favorable of all, in the period of recovery from more complete anesthesia, the power of response to outward stimuli is sufficient to afford ample opportunity for a series of observations which furnish the motive to the present inquiry. The cooperation of surgeons and anesthetizers is invited to secure data that bear upon any of the questions summarized below, or upon the general problem thus suggested. Special attention is directed to the importance of tracing relations between the phenomena recorded during anesthesia and the normal, waking, mental traits of the subject. Indeed the former can in many cases be interpreted only in the light of the latter; and observations become of value in proportion as the subject is able to account for the mental experiences of the unusual state of references to the normal source and trend of his mental processes. To determine these, skilful questioning controlled, where possible, by ingenious tests, will be the most effective instrument of inquiry.

(1) *Analogies Between the Lighter States of Anesthesia and Hypnosis.*—Of these the chief trait is *increased suggestibility:* Will the patient carry out automatically with enfeebled consciousness suggestions given by the operator to do thus and so, to feel or neglect certain sensations, to follow a train of thought, to carry

out a code of signals between subject and operator? Is obedience to such suggestions apparent by facial expressions, involuntary cries, nods, etc., after more controlled forms of reaction have disappeared? Is there evidence that patients respond to similar suggestions not directly addressed to them? Do they react to the conversation of the attendants, to a vague knowledge of their surroundings, to interpretations, correct or incorrect, of what is actually going on? Are there any of these responses that reflect the normal habits, idiosyncrasies, etc., of the waking condition? Do they belong to the experiences immediately preceding or to a more remote past? Next in importance are the automatic activities. Illustrations are desired of automatic talking, mechanical acts, and simple tricks of manner, of the type so common in sleeping persons who walk and talk in their sleep, answer questions without awakening, make movements as of knitting, counting money, etc., or other betrayal of their subconscious thought. In very favorable instances, it may be possible to place a pencil in the patient's hand and secure by questioning a subconscious answer or scribble or drawing that throws interesting light upon what is going on in the mind, even when there is but partial consciousness of surroundings or direction of mental processes. Such observations have especial value and should be accompanied by the actual records.

(2) *Analogies Between the Lighter States of Anesthesia and Dream Life.*—If the patient be questioned as to what occupied his mind up to the moment of losing consciousness and again during the regaining of full consciousness, there will inevitably result a valuable collection of data regarding the waning and waxing states of consciousness. Many of these phenomena will be dream-like, and should like dreams be recorded with ample detail to make them intelligible. The nature of the impressions, whether visual or auditory, acted or felt, and most of all the connections between the dreams and the recent or remote experiences of waking are important items. Just as ordinary dreams become interesting when they are connected with normal experiences, so in the dreams of anesthesia the patient alone can give adequate personal detail to give significance to the narrative.

(3) *Other Points of Interest.*—The specific points enumerated are intended to make the matter definite rather than to limit the scope of the inquiry. Evidence is desired that bears in any degree of pertinence upon the general problem thus suggested. As additional points of interest may be mentioned the following: In cases of repeated anesthesia after rather brief intervals, it is possible to elicit evidence that in the approaching or receding consciousness, details are remembered (or recallable by suggestion) which though beyond the control of the waking consciousness, are thus shown to connect one state of abnormal consciousness with another similarly caused. The analogous fact is that in hypnosis the subject will tell in a second hypnotization what happened while he was formerly hypnotized, but cannot recall in the waking interval; or again, in changes of personality the relapse into the altered personality will bring with it the control of memories of the last states of abnormal personality, which were not recallable in the normal state. Dreams and the actions of drugs show similar phenomena. Where records of this kind are available through anesthesia, they should be recorded in detail, and a conclusive set of questionings and tests be made to elicit how far the two states are connected. A further point of interest is the correlation of different types of mental states with different degrees of anesthesia. For this purpose it is desirable that some physiological sign of the degree of anesthesia be recorded as evidence in general of the depth of anesthesia during which the mental phenomena were observed. The variations of susceptibility to an anesthetic are such as to make it important to estimate the susceptibility in each case, as well as to give such general data as the age, sex, occupation, condition in life, physical state, temperament, purpose for which the anesthetic was administered, length of period under its influence, degree of nervous shock accompanying the same, and so on. The general use to which the data will be placed will be that of formulating a consitent account and interpretation of the range of subconscious mental states, including simple states of distraction, absent-mindedness, reverie, trance, hypnosis, dreams, the actions of drugs, alterations of personality, lapses of memory, states of confusion, and the reactions to anesthetics. It is hoped that a sufficient series of data will be elicited by the present inquiry to throw important light upon processes as yet imperfectly understood, and the analogies of which to such artificially induced states as those accompanying anesthesia are of especial importance. The psychologist has naturally but little opportunity to observe these phenomena and must thus appeal to those who are professionally engaged in their production, to step aside from their main interests to supply in a spirit of cooperation the data so valuable to students of a different and yet not unrelated science. Full credit will be given to all contributions, and no direct or personal use will be made thereof in print without distinct permission. Those to whom this circular letter is addressed are hereby invited to send records of such observations and to further the purposes of this inquiry in such ways as may lie in their power. The undersigned will appreciate, both personally and professionally, favorable action upon this request. Joseph Jastrow, Madison, Wis.

OBITUARY.

Dr. Walker Bryan, of 105 Madison Avenue, New York, was found dead in a chair in his office early on June 26. Dr. Bryan's body was removed to the home of his parents at 372 Clermont Avenue, Brooklyn. He was thirty-eight years old and a graduate of the College of the City of New York and the College of Physicians and Surgeons. He had been practising for fifteen years. He was a member of the faculty of the Brooklyn College of Pharmacy and leaves a widow.

Dr. John H. Hinton.—At a stated meeting of The Medical Association of the Greater City of New York, held June 12, 1905, the following report was presented and adopted:

Dr. John H. Hinton, one of the founders of this association, was born in the City of New York in 1827, nearly four score years ago. He was the son of John and Helen Frazer Hinton, also of New York City. Dr. Hinton was one of the rare examples of a typical New Yorker. Since early youth he had watched with civic pride, the marvelous development and wonderful progress of the old town to the Greater City of New York. Places that once resounded with the echo of his gun while hunting for game are now compact city blocks. Places where he gathered specimens for his cabinet of minerals are now covered with palatial dwellings. He received his medical education at the College of Physicians and Surgeons of this city and was graduated in 1852. He then spent two years in Germany, continuing his studies in special branches. After his return he was married to the daughter of Henry Elswood, a merchant of New York. She and three chil-

dren survive him. For many years he was associated with Dr. Alfred C. Post, whom a few of us can remember as a genial and lovable man. One of Dr. Hinton's children bears the doubly honored name of Alfred Post Hinton. At the outbreak of the Civil War Dr. Hinton entered the United States Army as surgeon. At the close of the war he was appointed visiting surgeon to the Presbyterian Hospital. Dr. Hinton, though deeply interested in everything that pertained to his profession, was fortunately not dependent upon it for his support, and found time to apply himself to those pursuits which attract a man of culture and means. He was an enthusiastic and discriminating lover of rare books, and his collection, the product of years of search, is, in its various branches, one of the most valuable in the city. He was also fond of the drama in its higher and better forms, and for many years was the friend of Joseph Jefferson. Two of the chief traits in Dr. Hinton's character were his outspoken candor and his sterling integrity. He was for many years treasurer of the New York Pathological Society, treasurer of the Society of Widows and Orphans of Medical Men and treasurer of the American Folk Lore Association. As a citizen interested in the welfare of the State and Nation, he was a member of the Union League Club; as a patron of the drama, a member of the Grolier and Players' clubs. In art and natural science he filled a place in the Metropolitan Museum of Art, the American Museum of Natural History, the American Geographical Society, and the New York Botanical and Zoological societies. A broad-minded man of diversified tastes, a sincere man, a man of unswerving integrity, loved and respected, his life filled with years and honor, after a lingering illness of some two months he passed over to the great majority to receive the reward of faithful service, on April 26, 1905. Your Committee, in presenting this record, offer the following resolutions:

RESOLVED, That by the death of Dr. John H. Hinton this association has lost a distinguished and honored member.

Resolved, That we extend to the bereaved family our profound sympathy for them, in this, the time of their sorrow. (Signed) R. E. Van Giesen, *Chairman;* P. Brynberg Porter, J. Blake White, *Committee.*

CORRESPONDENCE.

LATUREN VS. BOLTON DRUG COMPANY.

To the Editor of the MEDICAL NEWS:

Perhaps the most remarkable legal opinion on a medical subject which has ever emanated from the Supreme Court of the State of New York is the following, which was handed down on May 15, 1905, by Mr. Justice Gaynor, in the case of Laturen *vs.* Bolton Drug Company:

"SUPREME COURT, STATE OF NEW YORK,
(Second Department).

Emma F. Laturen
vs.
Bolton Drug Company.

Action for damages for alleged negligence in filling a physician's prescription, by which the plaintiff claims to have been poisoned with morphine.

Motion for a new trial on the minutes, the Court having dismissed the action on the evidence produced by the plaintiff.

Edmund F. Driggs for the plaintiff.
Charles C. Nadal for the defendant.

Gaynor, J.: The charge in the complaint against the defendant is negligence by its pharmacist in filling a prescription of Dr. Cruikshank for the plaintiff, by which she was poisoned by an overdose of morphine or opium, as is claimed.

The prescription was in the following words, viz.:

"Elixir Pinus Comp. cum Heroin, ounces 4—Merrill's. One teaspoonful in water every four hours."

The pharmacist saw that it only called for a patent medicine put up and sold in bottles by Merrill (at Cincinnati). It did not call for an original bottle of the medicine, but for a smaller quantity in a four-ounce vial. There was a bottle in stock, the printed label thereon bearing the name "Elixir Pinus Compositus," which the prescription called for, and that being the name under which the medicine was advertised and sold. But the pharmacist saw that the doctor's prescription had, after the name of the said elixir (as we have seen) the additional two words "cum Heroin," which is Latin for "with" Heroin.

These two words were not on the label of the bottle. The pharmacist therefore looked into the pamphlet advertisement of Merrill's patent medicines, which he had in the store, and found that Merrill also put up the said "Elixir Pinus Compositus" in the same bottles with the same name on the label, but with the additional two words under it on the label, "with Heroin," not "cum Heroin."

The formula given by the pamphlet also showed that the amount or proportion of Heroin was 1-24 of a grain to the dram, or teaspoonful dose. The pharmacist therefore, in order to fill the requirement of the words "cum Heroin," in the doctor's prescription, added the said 1-24 of a grain of Heroin to the dose, and thereby literally filled the prescription which, as we have seen, called for "Elixir Pinus Comp.," with the added two words "cum Heroin" (with Heroin).

There was plainly no negligence in this. The prescription was none too careful; it did not even correctly follow the words of the label of the patent medicine bottle it was filled from; but it was intelligently read and filled.

It is claimed, however, that there was a negligent oversight by the pharmacist, in that he let in one ingredient too many.

The pharmacist properly added 1-24 of a grain of Heroin for each dose, but it is claimed that he negligently left in 1-16 of a grain of morphine acetate for each dose.

And that came about as follows: By the formula printed on the bottle label the said "Elixir Pinus Compositus" is shown to consist of nine separate drugs in certain proportions, the seventh being the said "Morphine Acetate, 1-16 gr."

By the formula printed on the label of the bottle of the other mixture, *i. e.*, of the said "Elixir Pinus Compositus, with Heroin," it is shown to consist also of nine separate drugs in certain proportions. They are the very same as those on the label of the bottle of the "Elixir Pinus Compositus," except that the seventh, morphine acetate (1-16 gr.) is omitted, and Heroin (1-24 gr.) is substituted in its place.

The pharmacist, however, added the 1-24 grain of Heroin the dose to the bottled "Elixir Pinus Compositus," which contained the 1-16 grain of morphine acetate to the dose, as we have seen; wheras, if the prescription had been filled from a bottle labeled "Elixir Pinus Compositus, with Heroin," the 1-16 grain of morphine acetate would not have been in it, as it is omitted from that bottle, as we have seen.

The question, therefore, arose whether, if it be conceded that this was a negligent oversight by the pharmacist, the plaintiff could have been poisoned by it.

Heroin is a preparation of morphine, as is also morphine acetate; so that the two together in the prescription

made more morphine to the dose than if the 1-24 of a grain of Heroin only had been in it.

But the uncontradicted evidence in the case is that both combined would make only 1-10 of a grain of morphine to the dose. And there was no evidence whatever in the case that 1-10 of a grain of morphine in a dose, taken every four hours, could cause morphine poisoning. On the contrary, the uncontradicted evidence is that it could not do so, but that 1-5 of a grain increased to ¼ of a grain every hour would be usual and entirely safe; whereas the plaintiff's dose was only 1-10 of a grain every four hours, and she took only four doses. When we consider that morphine is not a cumulative poison, but that no effects of a dose of 1-10 of a grain, or even of a much larger dose, would remain in four hours after it was taken, we perceive the entire lack of foundation to the claim put forward for this plaintiff that she was poisoned by morphine.

On this state of the evidence it did not seem to me that there was any evidence on which the jury could be permitted to find that the plaintiff was poisoned by an overdose of morphine, and I therefore dismissed the case. It was not for the jury to guess; the fact had to be proved. I would now grant a new trial and send the case to a jury did I not remain of the same opinion. Moreover, I believe that a Court may take judicial notice of the scientific fact that 1-10 of a grain of morphine taken every four hours could not have poisoned the plaintiff.

It is very evident that the names on the two bottles are, taken together, very misleading. The name "Elixir Pinus Compositus with Heroin" is obviously wrong, for the contents of the bottle are in fact "Elixir Pinus Compositus," not merely "with" Heroin, but also "without" morphine acetate. For this reason the doctor's prescription was negligent. It should have unmistakably distinguished between the two bottles, since the names on their labels did not.

My attention is called to the fact that the doctor has published in a medical journal, and otherwise, the false and invented statement that it was decided in this case that a pharmacist may change a doctor's prescription, or substitute some other medicine than that it calls for, without liability. I regret to feel obliged to say that he is so well known in our courts, where he has been for many years connected with litigations of an unsavory character, to say the least, that no notice needs to be taken of his false statement so far as the legal profession is concerned, and I understand that to be so of the medical profession also. But lest any drug clerk may be misled by such false statement to the danger of others, it seems proper that I say that not only was no such thing said or decided, but it was not presented or even mooted. Where would counsel be found to present and argue such an absurd proposition?

The motion is denied."

This opinion is remarkable in all respects, but it is probably unprecedented in the history of medical jurisprudence, because of the glib and flippant manner with which the learned Trial Justice, in dealing with the important subject of the administration to human beings of so poisonous a drug as morphine, completely ignores therapeutic and toxicological authority.

When this opinion is examined in the light of medical science, it will be found so thoroughly deficient in knowledge of the medical subjects under consideration as to cause every thoughtful physician to shake his head in despair. Were it not for the fact that the opinion in question is handed down from a Court of the highest original jurisdiction, and also for the fact that the subjects with which it deals are those which closely concern the health and even the lives of human beings, it would be unworthy the serious consideration of any member of our profession.

Under the present circumstances, however, the opinion, it seems to me, should not escape the thoughtful attention of the entire community.

The idea of Divine right of personal government in our country perished in giving birth to the "Declaration of Independence;" therefore, it is no longer claimed that our courts should be infallible; on the contrary, it should be understood that their decisions, in the very nature of things, can, at best, represent nothing more than the accumulated expressions of long periods of human thought and action.

In full recognition of this fact, the thinking, law-abiding citizen, realizes that judicial opinion is necessarily and unavoidably, not infrequently, capable of a variety of constructions. Nevertheless, the great tendency of our present civilization is to bow down in reverential silence to the official acts of our judges, and, in the vast majority of instances, justly so, because these official acts represent the highest integrity of purpose.

I think I may venture the assertion, without fear of contradiction, that the profession of medicine is particularly conservative in its handling of public affairs—perhaps too frequently refraining from criticism of judicial expression concerning matters which are considered strictly within its sphere. Be this as it may, our profession should not lose sight of the fact that under our system of government the judiciary is the servant of the people, and not the people the servants of the judiciary. Judicial function is the proper construction of legal tradition, together with the equitable construction of those statutes which are made by the people in lawful assembly. These statutes should in themselves be the great voice of the commonwealth, and must be construed in the interests of law, order and public policy. It is one of the duties of the medical profession to safeguard the public health. It is its business to see to it that proper statutes are enacted, where medical matters are concerned, and it is also its function, when necessary, to enlighten the Courts with its special knowledge, in order that a just construction of these statutes may obtain. Its conservatism in this direction may be carried too far. Indeed, it has already been overreached. There is room for far greater concerted medical activity in matters of real practical importance to the community. The profession of medicine should not be blinded, in its pursuit of microscopic scientific investigation, to the necessity for careful consideration of some of the nearer things of everyday life.

When the medical profession of the great State of New York, the fountain-head of medical science in this country, is suddenly confronted with an opinion which is handed down from the Supreme Court, violating an elementary legal principle, and thereby shattering to its very foundation the usefulness of the physician's prescription as an order to the druggist, it is time that some concerted medical action should be taken in the premises.

When it is realized that this opinion distinctly holds

First: That there is plainly no negligence on the part of a druggist who tampers with the physician's prescription, even when this prescription calls for the dispensing of such dangerous and potent drugs as opium.

Second: That the substitution in the dispensing of a physician's prescription of one preparation for another is justifiable.

Third: That "morphine is not a cumulative poison," and that certain well-known poisonous doses of this drug *could not* be poisonous in their effects, thus flying directly in the face of accumulated scientific knowledge,

Fourth: That "no effects of one-tenth of a grain of morphine, or even a much larger dose, would remain in four hours after it was taken,"

Fifth: That a strictly ethical pharmaceutical preparation, the formula of which is published on each label, is a "patent" medicine,

Sixth: That a physician's prescription was negligently written, because in writing said prescription the physician did not name the ingredients he wanted *left out of the prescription,* as well as those he wanted the druggist to put in it,

Seventh: That the prescription was not carefully written, because the writer of it used the Latin word "cum" Heroin, instead of the English word "with" Heroin, so that in this manner, says the learned Court, "the prescription did not even follow the words of the 'patent medicine' it was to be filled from;"

And when we still further realize,

First: That at the trial of the cause the testimony of the druggist (who was actually guilty of substitution in the preparation of the prescription in question, and who also dispensed in said prescription a preparation containing 1-16 of a grain of acetate of morphine to each dose, whereas no acetate of morphine whatever was prescribed) was guiding to the learned Court as to a proper and safe quantity of morphine to be administered to the plaintiff,

Second: That this druggist further testified at the trial of the case, and the learned Court admitted his testimony in evidence and was guided by it in dismissing the complaint, that 1-16 of a grain of the acetate of morphine and 1-24 of a grain of Heroin added together equaled 1-10 of a grain of morphine, and also that this was a perfectly safe dose of morphine to give to the plaintiff, whom he had never seen, and concernig whose age, physical condition, or susceptibilities, he knew absolutely nothing.

Third: That this "chemist expert," whose testimony was guiding to the Court as to the proper and safe dose of morphine which should be administered to the plaintiff, swore that he was not a physician; that he had never received a medical education; that he did not know what was the matter with the plaintiff at the time he made the substitution in the prescription, and also that he had received his knowledge concerning the effects of morphine on the human system from the "National Dispensatory,"

Fourth: That this druggist further testified that ¼ of a grain of morphine given every hour "might put a patient under the influence of morphine," and also that ¼ of a grain of morphine administered every hour to a patient weakened in consequence of uterine hemorrhages, would have no more effect than if the person to whom these doses were administered was in perfect health, and furthermore, that ¼ grain doses of morphine would have "the same effect on every adult,"

Fifth: When we consider that the doses of morphine which this "chemist expert" informed the learned Court "might upset a patient" namely, ¼ of a grain every hour, would in all reasonable certainty, had such doses been administered to her, have killed the plaintiff in this action, and also that the administration of such doses, and even much smaller doses, has, over and over again, been followed by serious, and sometimes fatal results, particularly in persons where idiosyncratic tendencies have existed, but more especially in the cases of children and the aged and enfeebled with disease,

Sixth: That the testimony of the family physician, who swore positively that he found the plaintiff suffering from opium poisoning, describing to the Court her symptoms with considerable detail, was completely ignored by the learned Trial Justice, although this physician testified that he had been in the habit of regularly professionally attending the plaintiff for over twenty years, and by reason of such attendance he was in a position to know her peculiarities of constitution, together with her drug idiosyncrasies.

Seventh: And when to all this is added the fact that the learned Trial Justice, in rendering his opinion, resorted to judicial blackguardism for the sole purpose of supporting his foolish contention, it seems to me that it is the duty of the medical profession to speak on the subject in no uncertain voice. The play to the gallery should cease, and the competent critic should pierce the veneer of judicial farce with the keen searchlight of scientific truth. When well-settled and lawful medical principles, which have for their object the sole purpose of the protection of human life, become imperiled by farcical judicial opinion, "opera-bouffe" must give way to tragedy, and the play should take on a serious aspect.

I regret that a lack of time at this moment will not permit of a more complete and detailed exposure of the medical absurdities which are to be found in the text of the opinion as handed down by the learned Court. I will, however, make this detailed examination the subject of my next communication. Meanwhile, if I may be permitted a word concerning that part of the learned Court's phraseology which is devoted to myself, I desire to say that my personality, it seems to me, is entirely irrelevant to the issue.

Is it possible that the unsavory odor of defeat which was wafted down the river from Albany twenty years ago, in the case of "Cruikshank *vs.* Gordon," is still fresh in the memory of the then defendant's attorney?

This case (118 N. Y., 178) also interested the medical profession because of the principles involved, and there was at that time a very decided difference of opinion on the involved propositions of law between the learned Trial Justice, who was then at the bar, and the Court of Appeals.

"Unsavory" in the delicate nostrils of the learned Trial Justice as I may still be, the question here at issue remains the same. It cannot be deviated from in the slightest degree. No indulgence on the part of the learned Trial Justice in venom and personal abuse can by any possibility alter it.

Has the druggist the right to tamper with the physician's prescription, and has Mr. Justice Gaynor, in the case of "Laturen *vs.* The Bolton Drug Company" so held?

This question, together with the question of my professional reputation, I am perfectly willing should be left with the members of my profession with whom I have labored continuously and, I venture to hope, honorably, here in Brooklyn for twenty-five years.

With regard to the piteous and undignified spectacle which is presented to the community by the learned Court in its judicial use of irrelevant and abusive language in referring to a citizen and taxpayer, I have no opinion to offer, preferring to leave the question where it properly belongs, in the hands of Mr. Justice Gaynor's associates of the bench and bar. It may not, however, be considered unreasonable to add that such evidences of lack of judicial temperament can have no other effect on the mind of the average citizen than to cause him to give serious reflection to the question as to whether the source from which such undignified, irrelevant and venomous language emanates, is the judicial power to which grave matters appertaining to the public welfare should be submitted for impartial and rational adjudication. Very truly yours,

WILLIAM J. CRUIKSHANK.

June 6, 1905.

SOCIETY PROCEEDINGS.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, held February 16, 1905.

The President, Charles A. Dana, M.D., in the Chair.

Contributions to the Pathology of Sciatica.—Dr. J. Ramsay Hunt reviewed the literature as to the pathological findings in cases of sciatica, and showed that there was a general consensus of observations with regard to a swelling of the nerves. Some English observers thought they observed uric acid in the neurilemma. It seems very probable, however, that these deposits were secondary. In most reported cases, the nerve was found redder and more voluminous, being usually less dense than normal. In one case the sheath was found to be loosened, with some dilated veins around the nerve, but no sclerosis of the nervous tissue. In one case it was thought that more fat was present in the nerve than normal. Out of the 11 cases reported, three were negative pathologically and the eight that were positive, showed an increase in size, though without much nerve change.

Typical Attack.—Dr. Hunt's patient suffered from left sciatica which disappeared after six weeks of treatment. It recurred again the next year. There were tender points, especially at the exit of the nerve, and there was some numbness on the outside of the limb, with coarse fibrillary twitchings. The patient died from intercurrent pneumonia and at the autopsy the left sciatic nerve was found thicker and more voluminous. This thickness was due to the deposit within the sheath of a firm jelly-like substance. No redness and no edema were noted. In this firm translucent substance no uric acid could be found. There was no evidence of round cell infiltration or of acute inflammation. There were no histological changes in the nerve itself and no fibrin and no degeneration. These autopsy findings seem to be somewhat in accord with those described as found in previous cases. Just what their significance is is not clear.

Possibility of Syphilis.—Dr. B. Sachs said that Dr. Hunt's case would seem to be entirely exceptional and not at all likely to prove a typical example of the ordinary pathological condition underlying sciatica. There is a possibility that the pain in this case may have been due to syphilis. Gelatinous deposits from syphilis have been found along the spinal cord, and indeed there is no other pathological condition in which jelly-like changes are known to occur. A specific perineuritis simulating ordinary sciatica is not as unusual as has been thought.

Sciatica and Uric Acid.—Dr. James J. Walsh said that it seems unfortunate that whenever there is discussion of a neuritis of any form, it is always considered necessary to haul in the mention of uric acid. The roll of uric acid has been entirely too much exaggerated and it seems unlikely that it ever causes any of the forms of neuritis which are spoken of as rheumatic. Indeed most of the neuritises are due to overwork of a particular group of muscles with consequent lowered resistive vitality of the nerves supplying them, so that they become more liable to attack from infectious agents. It is in an overworked nerve that such toxic substances as lead and alcohol are likely to produce their manifestations and still further add to the likelihood of an inflammatory neuritis resulting. Men who work outside with a pick and shovel, bending frequently at the hips, are especially likely to have their sciatic nerve affected if at the same time they drink freely of alcohol. In such cases there is no need to think of uric acid in the case and no justification in medical literature for the introduction of the term, which serves only to perpetuate an old-time fallacy, yet unfortunately is supposed to furnish indications for treatment.

Less Sciatica.—Dr. Robert Morris said that as the result of more intrapelvic work in both males and females in the removal of prostates and tumors of the pelvis, sciatic nerves are much less predisposed than formerly to become affected by inflammatory reactions of various kinds. As a consequence, fewer cases of sciatica now come to the surgeon for nerve stretching and other modes of relief. When nerve stretching was more common, it was found that adhesions between the sheath of the nerve itself and the nerve substance were not infrequent in sciatica cases and that relief of the pain was very marked after these adhesions were broken up. Unfortunately a recurrence of the symptoms took place not infrequently in a few months, because of the re-formation of the adhesions.

Dr. Hunt, in closing the discussion, said that syphilis seems to be excluded in the cases, since there was no inflammatory reaction and no round cells or epitheloid cells such as are always found in syphilitic processes. The case was typical clinically of sciatica as it is ordinarily seen and there seems no reason to think that it was an anomalous type that was encountered.

Treatment of Acne.—Dr. George T. Jackson said that there are three indications for the treatment of acne. The first is to improve the condition of the skin, the second is to remove the bacteria that may be present and the third is to keep the skin surface aseptic as far as possible. The first indication can be best met by forgetting for the moment that there is any disease of the skin and correcting all other diseases that may be present. This means that all hygienic precautions must be observed and care taken of all the functions of the body. For the removal of the bacteria Dr. Jackson has found the curette and the acne lancet of special importance. Where there are many lesions, they should be removed by direct curetting two or three times a week. All deep-seated lesions should be opened with the acne lancet. This little instrument is better than the ordinary lancet because it possesses a shoulder which prevents it from sinking too deeply and thus giving rise to scars. Where acne lesions have not come to a head, slight pressure upon them brings out a white point. It is into this that the lancet should be plunged.

Local Drug Treatment.—Dr. Jackson considers that lotions are better than ointments in the treatment of acne, because the skin is already more greasy than it should be in these cases. He has found that sulphur is the best remedy and the lotio alba gives excellent satisfaction. In cases where there is much tendency to seborrhea, a resorcin wash is employed until the skin is shiny and then zinc oxide used to lessen the irritation. Dr. Jackson has found that certain forms of sulphur soap can be employed with decided advantage. At first the simple washing is enough but later the lather may be left on for some time.

The X-rays in Acne.—Some physicians have employed the X-rays for the treatment of acne, but the condition scarcely seems serious enough to justify the employment of so powerful an agent. One result of the use of the X-rays in certain cases has been the development of abnormally dry skin evidently with the development of an atrophy of certain portions of the true skin. Whenever the X-rays are employed, it must be with great care and only to the production of a slight burn, if even to this extent.

Colds and Grippe in 1904 and 1905.—The discussion of this subject was opened by Dr. James J. Walsh, who said that while in certain parts of the country, notably in Chicago, there seems to have been a serious development of grippe, during the present season, this has not been so clear in New York City. Statistics of the incidents of grippe in New York are not easy to obtain. They may be assumed from the reported deaths from grippe, but as it is easy to understand, most cases of true influenza that terminate fatally do so because of some complication, and the death is reported under this complication rather than directly from grippe. In fact it is not clear that true influenza exists in anything like the amount that has been sometimes claimed. It is not easy to isolate the bacillus of influenza and in not a few cases of this disease that is supposed to occur, other micro-organisms are found, notably the *Micrococcus catarrhalis.*

Prevalence of Grippe.—Since the first great pandemic of influenza began at Bokhara, in Central Asia, about fifteen years ago, and gradually spread westward, it has been said that there were recurrences of the epidemic each year. It has been the rule to find that a severe almost universal epidemic always produced smaller epidemics for a number of succeeding years after the first. A consultation, however, of the statistics in the United States, will show, for most of the nineteenth century, at least this is true according to Hirsch, that grippe has been prevalent every year in some part of the country. It seems not unlikely that though it is supposed to be the old grippe epidemic holding over each year, the cases that occur are scarcely more than have been noted in years previous to the great epidemic.

Pneumonia and Influenza.—It has sometimes been said that the great increase in the death-rate from pneumonia in this country, especially in our cities, is due to the influence of the grippe in complicating such cases and preparing the soil for the pneumococcus. As a matter of fact, however, a careful analysis of the statistics for pneumonia, as made in the Section on Hygiene at the meeting of the American Medical Association last June, shows that the death-rate for pneumonia has only increased under five and over fifty-five. Some of this apparent increase then is due to the fact that the spread of a better knowledge of children's diseases, has led to the recognition of pneumonia in children which were formerly missed. Obscure causes of death such as convulsions are gradually disappearing, as the death-rate from pneumonia goes up. In the same way, the mortality from old age is decreasing while the mortality for pneumonia is increasing. Many people used to die of old age who now die of terminal pneumonia. It would be impossible to argue with regard to grippe from the pneumonia death-rate.

Climatic Conditions in Grippe.—It has often been said that influenza is likely to be especially prevalent during the winter time, but when there is much damp weather rather than cold weather. As a consequence of this, it is thought that our severe winter of last year did not favor the existence of grippe while certain portions of the present winter have been more favorable. A consultation of the mortality from grippe in the two years here in New York City, however, will not bear out this idea, for the influenza death-rate last year was as great as this. Toward the end of the winter, owing to the fact that resistive vitality had been lowered by the severe cold, a great many cases of respiratory diseases were reported and there was an increase in the death-rate from influenza, as there is from all kindred diseases.

Influenza Groups.—Dr. Walsh said that in the epidemic of grippe in recent years, cases of similar character of the disease have occurred in groups associated with one another. For instance, it is the rule to find that where several members of a family come down with grippe, they suffer from the same type of the disease, *i.e.*, if in the first case the symptoms are mainly respiratory, subsequent cases are likely to have their affection confined to the thorax. On the other hand, if digestive symptoms are marked in the first case, subsequent cases in the same group are likely to show the same character. It would seem as though different types of bacilli were at work, and that probably there are a series of diseases all grouped together under the generic name, grip or influenza, which need to be studied much more carefully than at present in order to realize their indication.

Pains in the Bones.—At the present time the main symptom on which the diagnosis of grippe is founded is the occurrence of pains in the bones. It is probable that this symptom is due to the fact that there is an infectious agent in the blood destroying red blood corpuscles, and so making a special call upon the blood-making organs in the red marrow of the bone. It is not unlikely even that the bacilli themselves are directly irritative to the blood-making organs. It is in the flat bones of the pelvis and the skull, the characteristic headache and backache, and in the ends of the long bones, that the painful conditions are noted. Needless to say, this does not necessarily mean that the influenza bacillus is at work. Any infectious agent that will set up an irritative condition of the bone marrow will cause the pain complained of, hence the necessity for not considering that this symptom is at all pathognomic. With regard to the depression afterward the same may well be true, and there may be several forms of disease due to different micro-organisms at work.

Prevalence of Influenza Bacilli.—Dr. William H. Parks, in opening the discussion, said that influenza bacilli are present in a great many cases of catarrhal affections in our climate. During the winter season particularly is this true. More of them are found in January and February than in other months. The occurrence of the disease seems to be due to an increase of virulence, or a lowering of the resistive vitality of the patient, for the bacilli may be found even in those not suffering primary symptoms. Occasionally, perhaps, an association of different bacilli makes inoculation more easy. It is impossible to decide, however, whether there may not be a number of other bacteria grouped as influenza bacilli, because of morphological characteristics, yet without possessing true virulence. It is not impossible that once the disease has begun and passed through several persons the bacilli gain in virulence, and so become capable of affecting hitherto immune individuals.

Bacteria of Respiratory Affections.—Dr. T. W. Hastings said that in a large number of cases diagnosed as grippe he had found the *Micrococcus catarrhalis* to be the active agent. In not a few cases Friedländer's bacillus was also found. Some of the bacilli that seemed to be influenza bacilli proved later to be anomalous form of the *Bacillus pyocyaneus.* The most important bacillus in the winter time seems to be the *Micrococcus catarrhalis*, which in certain ways resemble the gonococcus or Weichselbaum's bacillus of epidemic cerebrospinal meningitis. This micrococcus, described also by Pfeiffer,

has been found producing conjunctivitis, vaginitis, bronchopneumonia, and certain cases of croup that were not diphtheritic. It occurs very commonly in the nose, and can only be recognized by careful culture methods.

Influenza Bacillus in the Eye.—Dr. Arnold Knapp said that in certain cases of conjunctivitis he had found the influenza bacillus in pure culture. In one case, in an infant, it produced a very severe form of membranous conjunctivitis, with perforation of the cornea. In this case it was not unlike the pneumococcus, or the diphtheria bacillus. A Vienna observer found that a form of trachoma was due to the influenza bacillus. In order to obtain the true influenza bacillus for purposes of comparison, Dr Knapp had to examine many cases of reported influenza in the hospitals. In only eight out of 120 supposed cases could the influenza bacillus be found Cultures of it grow well only where there is a certain amount of hemoglobin, which would seem to confirm Dr. Walsh's suggestion of the possibility of the bacillus having a special affinity for the blood-making organs, and hence producing the characteristic pains in the bones. This bacillis is found in otitis cases, as a rule, only where blebs containing bloody serum are present. The sequelæ of influenza affections of the eye are often very serious. Inflammation of the optic nerve may occur in the form of retrobulbar neuritis, producing central scotomata. At times distinct lines may be seen around the macula. Needless to say the prognosis of these cases is very grave.

Low Fever.—Dr. Warren Coleman said that the cases of grippe that have been under his observation this year have run their course with low fever not infrequently. In one recent case the temperature did not rise above 101° F., yet the fever was not broken for three weeks, in spite of treatment. The depression in these cases is beyond all expectation. In some of these low grade cases there are distinct disturbances of the cardiac rhythm. A very rapid heart is uncommon, and may last for some time into convalescence. Some of the cases have begun with distinct eruptions, at first erythematous, and then more urticarial in character, with prominent wheals. In these cases there is a distinct tendency to vasomotor instability.

Careless Diagnosis.—Dr. L. A. Connor said that most of the cases called influenza are undoubtedly ordinary catarrhal colds, which it has become the fad to speak of as grippy. In a number of cases in which microscopical examinations were made for the bacillus, the only case in which it was found was one where its presence had not been suspected. It would be a blessing if the term "grippe" were abandoned. It is applied now to every form of affection that occurs as the result of cold weather, from cold in one nostril to terminal pulmonary tuberculosis. Grippe is a soothing diagnosis to make. It prepares the family for the worst at once. Any number of complications may occur, and the doctor can scarcely be held responsible. It would be much better if the affections seen were called by proper descriptive names, laryngitis, pharyngitis, and bronchitis.

Nervous Sequelæ.—Dr. B. Sachs said that undoubtedly there has been some specially virulent infectious agent at work during the past fifteen years, the severe sequelæ of whose actions have been observed in the nervous system. These were much more severe twelve to fifteen years ago, when encephalitis and basilar meningitis were not infrequent. In more recent time there has been a lower grade of infection, and the peripheral nerves have suffered more. This problem of peripheral neuritis, due to influenza, sometimes makes a very serious diagnostic condition. A facial palsy, for instance, due to influenza may occur, and brachial neuritis is not uncommon.

Otologic Complications.—Dr. E. B. Dench said that influenza during the present winter has shown a distinct tendency to invade the ear more frequently than usual. The invasion is often sudden, accompanied by pain in the ear and some redness and bulging of the drum may be seen. In such cases an early myringotomy is necessary. Not infrequently mastoid tenderness is discovered early, and requires that the patient be carefully watched. The appearance of such tenderness must not be the signal for operating at once, since free drainage of the tympanic cavity may relieve the symptoms. Frequent irrigation with warm antiseptic solution seems to be the best treatment Dr. Dench has found no special good in the use of the ice-bag nor the cold coil, and, indeed, these only mask the symptoms. As a rule the symptoms abate within twenty-four hours after the incision of the drum membrane. In cases where spontaneous rupture of the drum has taken place, three incisions may have to be made in order to secure good drainage. Whenever there is pus in the mastoid it must be operated upon early.

Grippe as a Substitute for Malaria.—Dr. Winters said that the term "grippe" is a godsend now that the public have grown tired of the term malaria. The diagnosis of grippe is made lightly, and covers a heap of indolence. Nothing is more difficult than to make a correct diagnosis of grippe. There is no single clinical symptom by which the disease can be recognized. The most important diagnostic method is the careful exclusion of other affections. This winter the disease has been unusually mild, and the tendency has been to exaggerate the significance of the affection. Dr. Winters has seen apparently grave symptoms of otitis with mastoid tenderness, yet all but one of the cases got relief and remained well without operation. In one case six physicians were present and ready for operation—one of them the uncle of the child—yet it was decided not to operate, and the child recovered. As much as possible children must be saved from the shock of operation. Children should be wrapped well in blankets, so as to induce a free perspiration, and given a little niter, and perhaps a little aconite. Phenacetin should never be administered to children.

Special Grippe Symptoms.—Dr. George Mannheimer called attention to the fact that certain symptoms have been picked out as characteristic of grippe. Of these a redness of the anterior pillars of the fauces is not uncommon. The strawberry tongue persists in influenza longer than in other febrile affections. Not infrequently there is an enlargement of the spleen. The most characteristic group of symptoms, however, is the combination of respirative and digestive disturbances, with sweating. The sequelæ of the disease are many, and certain forms of muscular rheumatism are especially likely to occur in connection with grippe, and then to recur afterward

Dr. Bell said that many forms of affections of the upper respiratory tract are likely to be called grippe when really definite affections of known nature are present, but unrecognized for the moment. Follicular tonsillitis and pharyngitis are taken for grippe

NEW YORK ACADEMY OF MEDICINE.

SECTION ON SURGERY.

Stated Meeting, held February 3, 1905.

The President, Samuel Lloyd, M.D., in the Chair.

Chronic Osteomyelitis.—Dr. C. A. Elsberg presented a male patient, forty-one years of age, in whom there had occurred a chronic osteomyelitis in the upper portion of the shaft of the femur. He had been operated upon at least once in one of the other hospitals of the city. The condition was a very obstinate one and recourse was had to iodoform wax filling. A thoroughly healed scar appeared at the site of operation beneath which could be felt a resisting mass; the remains of the unabsorbed iodiform filling.

Dr. A. S. Taylor exhibited two cases in which facio-hypoglossal anastomosis had been done. He said that in the earlier part of this work he had experienced a great deal of difficulty in avoiding extensive traumatisms of the twelfth nerve. This was easily demonstrated to be of great extent by the character of the paralysis of the tongue immediately after operation. He said that, however, with the new instruments, which he had devised for the purpose, this injury to the twelfth could be made a negligible quantity and that there was no indication therefore for cutting this important nerve.

Three Stages in the Repair of the Seventh.—Dr. Taylor said that three stages could always be made out very clearly as the cases began to improve. The first evidence of improvement was to be noticed in the face when it was at repose, the expression during quiescence appearing nearly normal. The second stage of improvement was marked by an ability to retract the angle of the mouth on the injured side, and the third was characterized by a return of what might be called emotional symmetry. He showed a boy, about eight years of age, on whom he had operated fifteen months before. The results were very good indeed, but not by any means perfect. The closure of the eye on the affected side was complete except at the inner canthus.

Dr. Taylor exhibited another case, that of a young woman in which he had, by the aid of the new instruments, been able to entirely avoid injury to the twelfth. Although the operation was done but two weeks ago, there was no paralysis of the tongue, and as in the case of the boy, the scar was small and unobtrusive.

Dr. H. B. Moseley showed a case of cured traumatic keloid of the face. This keloid as in the case of all his other subjects, had been operated upon repeatedly and the region had been skin grafted by competent operators. It had yielded to twelve months continued and severe treatment by the X-ray. The results were admirable.

Dr. H. P. Moseley showed a keloid of the anterior chest wall which had also been subjected to repeated removals and skin grafting. It had been cured after repeated exposure to the rays.

Dr. H. P. Moseley showed a cured keloid occurring in the neck. The lesion had been the result of an operation for a boil. It had been cut out three times and had eventually yielded to 90 exposures of the X-ray.

Dr. L. P. Clark opened the discussion of Dr. Taylor's paper. He said that the objection which had been made to lateral implantation of the seventh nerve into the twelfth, had been shown experimentally to be purely theoretical. These objections had been based upon the belief that too much work, by this anastomosis, would be put upon the nucleus of the twelfth. This nucleus had, however, been shown to be quite capable of doing the work of both nerves, and it was not surprising that it should be, for it was the largest nucleus in that region of the brain.

Value of the New Instrument.—The twelfth, therefore, if operated upon by the delicate and satisfactory instruments devised by Dr. Taylor, need not be injured to any extent, and the amount of vigor which was taken from it by the additional work cast upon its nucleus, was a negligible quantity. The seventh nerve furthermore, was not a true muscle of mastication and could readily be understood not to require the same amount of vigorous nerve impulse as was needed to drive such nerves, for example, as the second and third divisions of the fifth.

Dr. Howard Lilienthal said that he had understood, until hearing Dr. Taylor's report, that the eleventh nerve was to be preferred to the twelfth for facial anastomosis. The last of Dr. Taylor's cases, however, showed such successful preservation of the hypoglossal as demonstrated to him that with the use of the new instruments, this nerve was probably to be preferred to the spinal accessory.

Dr. A. S. Taylor said that the criticisms upon the use of the twelfth became very pertinent if use were made of it low down in the neck, as he understood to be the case in Fraser's operation. In that event the nerve has become so attenuated that it must be cut in order to complete the anastomosis; higher up in the neck, however, close to the petrous portion of the temporal bone, the nerve trunk is of substantial thickness and the anastomosis can be done without apparent injury.

Disadvantages of Eleventh.—One disadvantage of using the eleventh, which he said was not only theoretical, but, in some cases at least, real, was the convulsion of the patient by associated movements in the shoulder. These are very hard to disassociate and even after months are apt, especially under emotional conditions, to be manifest to a very disagreeable extent. Another reason for using the twelfth rather than the eleventh, the speaker considered to lie in the fact that the centers of the seventh and twelfth are nearer together than the seventh and the eleventh. This seems practically to result in a saving of time for the patient, because after all anastomotic operations education has to be begun as from infancy up.

Education of the Centers.—The cortical centers must be taught to operate new sets of muscles. A further reason for using the twelfth instead of the eleventh lay in the fact that if correlated movements did occur, which, indeed, had been noted, the terminations of the two nerves were closely associated with each other and one of them, the twelfth, supplied an organ which was in great part hidden within the mouth. Therefore they could not possibly be so noticeable as correlated movements occurring between areas widely separated as in the case of the termination of the seventh and the eleventh nerves.

Dr. Erdmann cited a case upon which he had operated about a year ago. He utilized the eleventh instead of the twelfth. Although there was for a time after operation a certain amount of motion of the shoulder coordinated with that of the face, this had passed away in relatively short time and the result he believed to be somewhat better than in the patient shown by Dr Taylor.

Treatment of Chronic Osteomyelitis and Chronic Bone Cavities, by the Iodoform Wax Filling.—Dr. Charles A. Elsberg said that the need of obliterating cavities occurring after ordinary abscesses in the soft tissues was, owing to the character of the yielding walls

of such cavities, a relatively rare occurrence. Not so, however, with bone cavities. Months of treatment and innumerable dressings become necessary for the treatment of cavities of the hard parts. A vast number of technics, many of them very ingenious, have been tried, —the skin flap inversion method and Schede's healing under moist blood clot being among the number. Recently, from Vienna, had come the suggestion of the iodoform wax treatment. The method there employed was to thoroughly cleanse the cavity and swab it out with two per cent. formaldehyde. The percentage of iodoform in mixtures used at Vienna averaged about 60 per cent., the spermacetti and the oils being arranged in such quantity that the mass, when poured in, would take from two to three minutes to harden. As in the case of paraffin injections elsewhere in the body, this mass can be shown to be slowly absorbed as the tissue grows in, and the observations of it under the X-rays greatly facilitate it by the presence of iodoform which throws a most excellent shadow. The all-important point in the technic is that every particle of decayed bone must be removed and the part must be made as dry as possible. Having found that a simple pouring of the melted mass into the cavity does not suffice to fill all its interstices, the author recently resorted to the plan of pouring the wax into cold water for a moment and then pushing it by hand or by an instrument, much as a dentist would fill a tooth, into the ramifications of the bone tissue. He has modified the technic further in that he uses but 20 per cent. of iodoform instead of 60 per cent. He has also utilized paraffin instead of wax and oil. The results have not been as good as those reported from Moorhof's clinic at Vienna, but sufficiently encouraging to warrant further experimentation with the technic. Even if it fails to give the needed union, the operation is certain to stimulate granulations, to cleanse the part and to relieve the pain of numerous dressings.

Dr. Virgil P. Gibney, in opening the discussion of this paper, said that he had never used wax, but had often employed powdered iodoform. He had two successful cases and several failures, which, after hearing Dr. Elsberg's paper, he was convinced were due to a failure to thoroughly cleanse the parts.

Dr. Howard Lilienthal said that the author was not sufficiently enthusiastic about the results which had been obtained in the 15 cases reported. In the speaker's opinion, they had been more than good. The cessation of discharge in itself, he said, was almost enough to warrant the operation, which was free from danger. He considered the technic a great advance over the older method of packing, but neither so simple nor so sure as the filling of a tooth.

Dr. A. V. Moschcowitz said that a four per cent. solution of agar, if mixed with iodoform, might be used advantageously to fill the cavities, because such a combination would penetrate further into the interstices of the bone; complete hemostasis in this case being unnecessary.

Dr. Elsberg, in closing the discussion, said that agar had been tried. He felt very certain that the wax was better and that it should be shoved in, adranalin having been used before-hand to control oozing.

Treatment of Keloid by the X-ray.—Dr. Henry P. Moseley said that the treatment of keloid by incision had been shown to be almost universally a failure. While the X-ray, he said, was not without numerous objections, he considered that a study of the cases presented demonstrated that it was the most potent agent for the treatment of this obstinate and fortunately very rare condition. He said that so far there had been no recurrence in the cases which had been treated at the Presbyterian Hospital. He had concluded that in order to get results, the part must be severely burnt.

Dr. A. L. Fisk, in opening the discussion, said that very few cases had been reported. The literature recording but twelve, all of these having occurred in post-operative keloid. Such keloids, it is true, tend to disappear spontaneously, but undoubtedly the X-ray hastens the process.

Dr. C. W. Allen said that a distinction should be made between true and surgical keloids. He had found the X-rays useful in the disfiguring keloid of facial syphilis. He disagreed with the reader of the paper in contending that a dermatitis need not always be produced in order to make the keloid disappear.

Dr. Robert P. Morris reported two cases, both of which had been subjected to operation by eminent surgeons, with a failure in each case, until recourse was had to the X-ray.

Dr. Moseley, in closing, said that he was certain that in order to get results, a burn must be made. Furthermore, his best results have come from the use of a low vacuum tube. This should be used for all superficial troubles.

The Present Status of Blood Examination in Surgical Diagnosis.—Dr. F. E. Sondern said that great changes had taken place in the relation of blood examination to surgical diagnosis in the past twelve years. He reviewed the extensive literature of the subject up to the present time and then called attention to the fact that almost all the older observations were based upon the extent and rate of development of the leucocytosis. This misconception had given an opportunity to a great many men prominent as clinicians, to cast odium upon the value of the blood count as a diagnostic surgical sign. These adverse opinions were based chiefly on two points, viz., the absence of the leucocytosis in some cases in which pus was present, and the presence of pus in a reasonably large number of cases having a low leucocyte count. As a result of a great number of blood examinations made in surgical diseases, the author had been impressed by the fact that the differential count offered a far better guide to the status of an inflammatory process, and one which was not influenced to any extensive degree by bodily resistance, than the simple degree of leucocytosis. A study of about 5,000 blood specimens had yielded an average percentage of 62 for the polymorphonuclear. While it is true that the percentage of these cells varies somewhat in health as well as in the different stages of bodily resistance, these variations the author held to be within narrow limits.

Three Distinct Blood Pictures.—The author finds three distinct pictures in inflammatory lesion. First, a relative percentage of polynuclear cells below 70 with an inflammatory leucocytosis of any degree excludes the presence of gangrene or pus, and usually indicates good resistance. Second, an increased relative percentage of polynuclear cells with little or no leucocytosis is still an absolute indication of the inflammatory process and the percentage is a direct guide to the severity of the infection. The author has never observed a case of pus or gangrene with a polynuclear percentage below 70. In adults these conditions are decidedly uncommon with less than 80 per cent., and the probability of their presence increases with the percentage. Ninety per cent. of polynuclear cells indicate profound cachexia, while the prognosis for recovery is extremely bad in all cases over 94 per cent. Third, an increased relative percentage of polynuclear cells with a decided inflammatory leucocytosis.

Relation of Leucocytosis to Resistance.—The old maxim was, "Good resistance, marked leucocytosis; poor resistance, little or none." A. M. Holmes (*Jour. A. M. A.*, January 26, 1905) judges bodily resistance by small lymphocyte count. The author, however, believes the percentage of polynuclear cells is the best indicator of this condition.

Iodophilia a Guide to the Inflammatory Process.—Locke has obtained interesting results from this method. In the author's hands it has not seemed as reliable as the polynuclear percentage.

Dr. Edward Quintard, in opening the discussion, said that procrastinating medicine had undoubtedly killed more people than rash surgery. Despite this fact he considered that the employment of such a valuable diagnostic adjunct as had been described could but prove useful to the surgeon. He said that in his work upon the stomach, he had found that the polymorphonuclear differential count had proved valueless as a diagnostic aid in carcinoma.

Dr. Francis C. Wood agreed very cordially with the reader of the paper as to the value of the differential polynuclear count. He cited the case of a hospital interne whose life had been undoubtedly saved by its employment, a gangrenous appendix having been recognized through the agency of the differential, when, clinically it gave almost no symptoms whatsoever. Dr. Sondern, in closing, said that the blood picture was of no value whatsoever in establishing the diagnosis in carcinoma of the stomach.

CHICAGO SURGICAL SOCIETY.

Regular Meeting, held March 6, 1905.

The President, L. L. McArthur, M.D., in the Chair.

Dermoid Cyst of Lung.—Dr. Nicholas Senn reported a case of dermoid cyst of the lung, saying that thus far there are only sixteen cases on record. This is an unusual and very rare surgical affection. The patient, C. R., a male, aged twenty-three years, American, unmarried, a railroad man by occupation, entered the out-patient department of the University Hospital, Michigan, July 19, 1904. The case was very carefully studied there, and a history of it very accurately reported by the attendants at the clinic, and particularly by Dr. Roger S. Morris, to whom Dr. Senn was indebted for a complete history of the case. When the patient entered the Presbyterian Hospital, Chicago, the speaker had no idea that the case had been so thoroughly studied. The history of the case as related by Dr. Morris, is as follows: "The patient entered the University Hospital, July 19, 1904, when I first saw him with Dr. Ellis. From certain points in the history, which will appear presently, together with the result of the physical examination, I diagnosed the condition as probable dermoid cyst of the thorax, though unaware at the time of similar cases. The patient, a resident of a neighboring town, was unable to remain at this time, but was advised to return. This he did. On July 27, 1904, he was admitted to the medical ward, and the following history was obtained: On admission the patient complained of cough, expectoration of large quantities of foul-smelling sputum, and hemorrhages from the lungs. *Family History.*—Father is living and well. Mother has had "stomach trouble" nearly all her life, but is in good health at present. The patient has two brothers and three sisters who are alive and well. An aunt on the father's side died of "hemorrhage of the lungs and dropsy;" nothing more definite is known of her case. Otherwise the family history is negative. *Personal History.*—As a child, the patient was very well. He had measles, chickenpox, and a mild attack of diphtheria or tonsillitis. In all instances recovery was uneventful. At the age of twelve the patient had a diarrhea which persisted for about a year. Since then the patient has enjoyed good health until the onset of the present trouble. *History of the Present Disease.*—About nine years ago (eight years, according to out-patient history), that is, about the time of puberty, the patient had a severe attack of pneumonia on the left side, followed by a feeling of tightness across the chest and pain on breathing. The latter was localized to an area about the size of a hand in the precordial region. Prior to the attack of pneumonia the patient says he was struck over the heart by a drunken man, and ascribes the pneumonia which soon followed to the blow which he received. Between the time he was struck and the development of the pneumonia, he had severe neuralgic pains in the region of the heart and in the left shoulder. A year later the patient had another attack of pneumonia, which lasted about eight weeks. During a coughing fit, a large quantity of "pus" was coughed up at one time (over one quart). The "abscess" or "empyema" discharged three times in the next three or four days. The patient describes the so-called pus as a "yellow, semi-fluid material." After raising this material, the patient became much better, but has coughed and expectorated a good deal ever since. Four years ago the patient had a very severe hemorrhage from the lungs, and since then he has had one about every six months. The last one occurred just before the patient returned to the hospital. At times the hemorrhages amount to about one pint. During the last three years the patient has noticed a "rotten" odor to the sputum. In March, 1904, he went to Colorado for his health. He was examined by a physician, and told that he had empyema. Operation was advised. This the patient did not submit to. No tubercle bacilli were found in his sputum at this time. For some time the patient has coughed up hairs in his sputum; these are from one to six inches long. Since last March there has been some soreness over the right side of the chest. Expectoration is much more profuse when the patient is lying down. He has not lost weight.

Status Præsens, July 29, 1904.—Temperature has been normal since admission, respirations 20, pulse 72, regular, of fair size and tension. No palpable thickening of the arteries. Patient looks very well nourished. Active dorsal position. Mind clear. Build rather short and stocky; strong frame; panniculus fair. Muscles well developed and rather soft. The skin is of good color, smooth, dry, and elastic. No edema of ankles. There are no stiff joints. Lymph glands about left clavicle and behind left sternocleidomastoid are slightly enlarged; otherwise negative. Expression is negative. Pupils are equal, react well; sclerotics are clear, slightly bluish. Conjunctivæ and lips are of good color. Teeth are in fairly good repair. The tongue is large, clean and moist. Examination of neck negative. Thorax is well formed, rather large. The left side seems slightly fuller than the right. The epigastric angle is about a right angle. Expansion is rather small, slightly less on the left side, especially on deep breathing. The difference is more noticeable in the lower part of the thorax. The clavicles are equally prominent. On percussion the apices are of equal height, about one and one-eighth inch above the clavicles. Above the second rib the percussion note is the same on the two sides. Below this level the note is somewhat hyperresonant on the right, with relative dulness throughout the left

front, the upper border of the relatively dull area sloping downward and backward into the left axilla. Traube's space is clear. There is no absolute liver dulness. The lung liver border is on the sixth rib in the right nipple line; it extends straight around. The lung descends to the seventh rib on deep inspiration. Auscultation above the right clavicle gives rather harsh vesicular breathing, with fairly high-pitched sibilant râles on inspiration; below the clavicle throughout the right side there is moderately strong vesicular with no adventitious sounds. Above the left clavicle the breath sounds are obscured by sonorous rhonchi, which are heard both on inspiration and on expiration. Below the left clavicle there is harsh vesicular accompanied by dry râles of medium pitch, the vibrations of which can be felt on palpation. Below a line drawn from the anterior axillary fold to the left nipple the vesicular is very weak, and toward the end of inspiration a few crepitant râles are heard. The ausculted spoken voice is slightly weakened between the second and fourth ribs on the left; vocal fremitus unaltered here. Posteriorly, the apices are of equal height on percussion. Below the level of the spine of the eighth dorsal vertebra there is relative dulness on the left side; this is continuous with that previously described in the axilla. In other respects percussion of the back is negative. The upper border of relative dulness does not move with change in position of the patient. Auscultation reveals fair vesicular throughout the right back and on the left back down to the dull area, where the vesicular is weak and distant. Pectoral fremitus is slightly weaker on the left side over the same area. Auscultation of the spoken voice is negative behind. The apex of the heart is best felt in the fourth intercostal space in the nipple line. At the beginning of the examination a pulsation was seen on the second and third interspaces, which was forcible enough to be palpated. Absolute heart dulness begins on the fourth rib and extends outward to the apex: on the right it extends to the left sternal line. The relative heart dulness cannot be separated from that obtained over the left lung. The heart sounds are moderately strong and clear. The second pulmonic is reduplicated and accentuated. Abdomen is on a level with the ribs. It looks natural. The walls are quite resistant, making palpation difficult. Spleen and liver are not felt. Percussion is negative. Leucocyte count, 9,256 on July 27, 1904. Urine examination was negative. Sputum was examined July 31, 1904. The color was whitish-gray. Sputum had a foul odor, like that of "bad" eggs. It separated into three layers. No tubercle bacilli were found; no elastic tissue. Later a hair was found in the sputum. Fluoroscopic examination shows a slight shadow throughout the left side above. Below the level of the eighth dorsal spine and extending to about the level of the eleventh dorsal there is a diffuse dark shadow, as dark as that from the liver. The entire right side is clear. A skiagraph was taken; unfortunately the negative was poor."

Clinical History.—Dr. Senn stated that this clinical history was very full and accurate, and corresponded exactly with what he had found on careful examination of the patient repeatedly after his entrance to the Presbyterian Hospital. The patient coughed up during his residence in the hospital for a number of weeks, six or eight hairs. These hairs were very thin, lighter in color than the hair of the scalp, and varied in length from one to six inches. Sometimes, when patient expectorated these hairs, he felt a certain sensation which he referred to the base of the heart. Expectoration, at times, had been very copious and fetid. The patient's general condition was excellent. There was no wasting, no cachexia, hence any suspicion of tuberculosis could be abandoned without giving the chest a careful examination. He had made use of the X-ray in this case, and the skiagraph exhibited corresponded to what Dr. Morris had described in the clinical history. From the clinical history, the character of the sputum, the general condition of the patient, there was no difficulty in making an absolute diagnosis of dermoid cyst communicating with the lung. He resorted to a surgical operation for the purpose of exposing, if possible, and removing the lining membrane of the dermoid cyst. Clinical records showed at the present time almost invariably that these cysts had their location in the anterior mediastinum at a point corresponding with the location of the thymus gland. This was their favorite primary location. He therefore aimed in operating upon this patient to expose that portion of the mediastinum which is most frequently the seat of dermoids of the lung. He made a T-shaped incision, which remained well-defined by the scar which followed as soon as the wounds had healed, largely by primary intention. He made a transverse incision directly over the manubrium, and a vertical incision over the center of the sternum. As he wanted to trephine the manubrium at a point corresponding with the location of the thymus gland, he made another or second opening two inches lower down, after reflecting the cutaneous flap and periosteum, which were separated from the sternum, and united these trephined openings by the use of a chisel, thus making an opening more than two inches in length in its vertical diameter, exposing freely that part of the anterior mediastinum which was generally the seat of dermoid cysts. The moment he opened up the anterior mediastinum by cutting through the posterior layer of the periosteum, air entered forcibly. Hemorrhage was quite profuse. He enlarged the opening to correspond with the size of the trephine openings, and this exposed freely the anterior mediastinum. Owing to profuse hemorrhage, he packed the large wound with iodoform gauze, and allowed the gauze tampon to remain for five or six days, when it was removed, and when he anticipated, in all probability, he would find the remains of the dermoid cyst in the expected location. In this, however, he was disappointed. In removing the tampon he found that the entire part of the anterior medastinum which was exposed lined fairly well with granulations. He proceeded to explore the floor of the wound with the probe, but no trace of the dermoid cyst could be found. The operation had not influenced the clinical course of the disease. Before resorting to operative measures, and knowing nothing about the previous history of the case, for the purpose of locating, if possible, the dermoid cyst accurately, he resorted to exploratory punctures. He found, as did Dr. Morris, an area of dulness corresponding with the upper segment of the sternum and at the base of the heart. He explored about an inch and a half from the left margin of the sternum and a little above the base of the heart to the depth of three or four inches, resorting to aspiration, gradually withdrawing the needle, but the result was negative. He found likewise a limited area of dulness which corresponded with the intrascapular region, that is, between the spinal margin of the scapula and the transverse process of the spine. In this locality he punctured, but with a similar negative result. The patient coughed now about the same as he did before the operation, so that the question arose as to what was to be done in the future. He exhibited the patient with a view of asking the advice of the members of the Chicago Surgical Society as to

the course to be pursued in the future. He could do nothing more with the anterior mediastinum. The patient had a slight area of dulness extending over the base of the heart, with a similar area of dulness on the posterior surface of the lung. He thought he had to deal here with an exceptional case. In nearly all, if not all, cases of dermoid cyst of the lung it was found to take its origin in a location corresponding with the thymus gland. That part of the mediastinum had been thoroughly explored. Nothing was to be gained by repeating the operation in that locality. He took particular care to use a probe in all directions in search for a possible sinus communicating with the supposed original seat of the disease. The question arose now, should he resort to costal resection at a point to which the patient referred his difficulty, namely, above the base of the heart, or should be, in view of the fact that distinct physical evidence of pulmonary complications, or, at least, pleural thickening over the posterior aspect of the chest had been found, operate in that locality? He had kept the wound open for a number of weeks with a view to studying repeatedly the condition of the anterior mediastinum, which was exposed by the operation. The arch of the aorta could be seen in the lower part of the wound. The operation wound had now completely healed, yet the patient was in the same condition as he was before operation.

Dr. Senn passed around some of the hairs which the patient has expectorated at irregular intervals. One of the hairs measured six inches in length.

He also reported cases of (1) echinococcus cyst of the lung; exploratory puncture; rupture of cyst. (2) Dentigerous tumor of superior maxilla. (3) Ligation of internal and excision of external carotids for malignant disease. (4) Disarticulation at the hip-joint for sarcoma of femur and tubercular endovaginitis. (5) Extensive plastic of the face after operation for carcinoma of the orbit, nose and face. (6) Rectoplasty for extensive traumatic defect. (7) Scar carcinoma in the region of the great trochanter. (8) Fracture of humerus with posterior dislocation of upper fragment. (9) Secondary suture of ulnar nerve after gunshot injury.

Surgical Treatment of Chronic Mucomembranous and Ulcerative Colitis; with Special Reference to Technic.—Dr. J. E. Summers, of Omaha, Neb., read a paper on this subject, by invitation. The author first discussed chronic primary colitis; then primary membranous colitis and ulcerative colitis, and reported cases. After referring to the work of Keith, W. Hale White, Deaver, MacEwen, Cannon and Lane, the author stated that in order to cope successfully with the different kinds of colitis the surgeon must, in so far as possible, be able to differentiate the cases and apply the surgical procedure to fit the cause. This is rather new surgery, but has a field of usefulness. Any form of colitis which has resisted careful medical treatment must be studied with a view of determining the cause and the reasons for the persistence of the cause. For surgical convenience he recognizes three kinds of colitis: (1) The inflammatory, due to the effect of some specific organism—an inflammatory disease commencing in and mostly confined to, the colon. (2) An inflammatory condition secondary to an inflammation or derangement of function of the vermiform appendix. (3) An inflammation induced by technical interference with the peristaltic, and more especially the antiperistaltic waves of the colon. The surgical treatment of colitis, if carried out in recognition of these causes, will be successful. To be successful, the type of operation must be selected with a view to meeting the pathology. It will not do to confine oneself in all cases to a right inguinal colotomy. This may have done for the class of cases for which it was first selected, but even in this class, which the author designates the bacteriological, the artificial valvular fistula operation suggested by Gibson, of New York, has many advantages, not the least being the annoyance of a large open fistula, and the inevitable loss of weight and strength which always follows the free external discharge of chyme as it comes direct from the ileocecal orifice. In his experience with the appendicular forms of colitis, there are two varieties—first, and most common, the explosive form, which is recognized in the first few hours by intense general abdominal pain, with tenderness over the appendix. In from six to twenty-four hours dysenteric symptoms develop, which may last some days, and then gradually subside or persist with moderate symptoms for several weeks. These attacks recur. The other form is of the kind described by Deaver. In the first kind the removal of the appendix is all that is required, as has been so in three of the author's cases. In the neurasthenic type of Deaver not only should the appendix be removed, but the Gibson cecal fistula ought to be established—the long-continued interference with cecal and colonic digestion by the abnormally functionating appendix has brought about changes in the mucosa of the colon that can only be cured by the rest and local treatment afforded through this fistula. If these simple means will not bring about a cessation of the discharges, and the impaired health which always accompanies them, then something further must be done. The colon must, in greater or less part, be excluded from the process of intestinal digestion and the function established gradually by the small intestines and the remaining portion of the colon. Operations for exclusion have undergone a remarkable evolution.

Drainage in Diffuse Septic Peritonitis.—Dr. Van Buren Knott, of Sioux City, Iowa, read a paper, by invitation, on this subject, in which he drew the following conclusions: (1) Operations for diffuse septic peritonitis should be made as quickly and with as little manipulation as is compatible with thoroughness. (2) Evisceration, partial or complete, greatly increases shock and the prospects of a fatal result. (3) The general use of clean hot water will most thoroughly cleanse the infected cavity with the least traumatism. (4) Drainage is simplified by collecting the peritoneal fluid at one point where drains may be easily placed. The elevated head and trunk posture followed by the gravitation of fluid to the lower pelvis best accomplishes this. (5) Results following the surgical treatment of diffuse septic peritonitis will be improved should each individual operator adopt some definite form of procedure in such cases which, being well understood by operator and assistants, may be methodically, speedily and thoroughly carried out.

Exclusion of Portions of the Intestine.—Dr. M. L. Harris, in discussing these two papers, said his experience as to exclusion of portions of the intestine had always been limited to exclusion with drainage into the intestine. He has resorted to this method in several cases in which the cecum and ascending colon were involved, and always with success. He has always made use of the method of dividing the ileum and transplanting it into some portion of the colon distant to the trouble which he sought to relieve. The colon was always left free, so that it could drain. He believes this is an essential feature, and thinks that complete exclusion of any portion of the intestinal tract should never be undertaken.

Exclusion of the Bowel.—Dr. Jacob Frank said, with reference to exclusion of the bowel, in some of the cases reported before the society, it was demonstrated that in that part of the bowel which was excluded there were masses formed from the secretions or excretions from the mucous membrane. These masses consisted of small balls of cheesy substance, filling up the excluded bowel. He does not think it is safe to close up both ends, as he has demonstrated this in dogs. He has specimens at home of these cheesy masses which he intended to exhibit at a future meeting of the society. As to Dr. Knott's paper, he had tried the method mentioned by him, and in two cases of diffuse septic peritonitis he filled the abdomen with salt solution, put the patients in the Fowler position, and used glass drainage tubes, setting the patients up in bed with a backrest, and both recovered.

Treatment of Septic Peritonitis.—Dr. Daniel N. Eisendrath showed the photograph of an apparatus which has been in use in the Michael Reese Hospital for the past two or three years for the treatment of cases of diffuse septic peritonitis. This apparatus has advantages over using tables, chairs, etc., as one can more accurately get the Fowler position. It is an advantage over propping up of the patient in bed, for those who have had experience with such patients know that in their weakened condition they would slip down. About a year ago, when he began to use the Fowler position systematically and to flush cases of diffuse septic peritonitis thoroughly with hot salt solution, using three to four gallons in each case, he changed his mortality from 100 per cent. practically to a large per cent. of recoveries. He cited three cases of diffuse septic peritonitis that had recovered from this treatment.

Dr. Alexander Hugh Ferguson said that in a spreading inflammation of the peritoneum one should not forget where the focus of the inflammation was when he begins to drain. The Fowler position, which has been so much lauded and recommended, should not supplant every means of drainage of the abdominal cavity. He mentioned three positions from which pus emanated that should not be drained by the Fowler position.

Dr. Knott, in closing the discussion on his part, said, with reference to the remarks made by Dr. Frank, he believes in the long-run Dr. Frank would secure better results, afford more comfort to his patients, with less tendency to fecal fistula, by the use of soft rubber tubes than by the use of glass tubes.

Dr. Summers, in closing the discussion, said that his experience had been limited to eight operative cases. He did not know that Dr. Harris had been doing the operation of intestinal exclusion with drainage into the intestine. He was not aware of it, because Dr. Harris had not published his work. With reference to Dr. Knott's paper, he would say that Dr. Knott was so thoroughly convinced of the utility of the plan advocated in treating cases of diffuse peritonitis, that he operated upon his own son, eighteen hours after an operation for perforation appendicitis by another surgeon. Dr. Knott had himself operated in the absence of a colleague, making extra median incision, and with toilet and drainage established, saved the boy's life.

BOOK REVIEWS.

German-English Medical Dictionary. By Hugo Lang, B.R. Edited and completed by Bertram Abrahams, M.B., B.Sc., F.R.C.P. P. Blakiston's Son & Co., Philadelphia.

This substantial volume fills a long-felt want for the English-speaking members of the profession of medicine, and the author has handled the difficult question of the genders sensibly. As regards the mute letters, both spellings are given where the lack of the older form might occasion any uncertainty. The bulk of the book is commendably limited by the omission of words spelled identically in the two languages, and a large number of terms used in chemistry, biology and pathology are included. It is, furthermore, a good piece of book making, in remarkable readable type and strong and tasteful binding.

Text-Book of Insanity Based on Clinical Observations. By Dr. R. von Krafft-Ebing, late Professor of Psychiatry and Nervous Diseases in the University of Vienna. Authorized translation from the latest German edition by Charles Gilbert Chaddock, M.D., Professor of Diseases of the Nervous System in the Marion-Sims-Beaumont College of Medicine, Medical Department of St. Louis University, St. Louis, Mo., etc. F. A. Davis Company, Philadelphia.

Dr. Chaddock has excellently performed a much-needed service in giving to readers of English so careful and adequate a translation of Krafft-Ebing's great work, which has remained a leading German text-book on insanity, although the author's strong bent toward psychologic explanation has fallen somewhat into disfavor in these later days during the tremendous vogue of Krapelin. The facts of morbid psychology have never found a better clinical exposition than in this volume, which resulted from the minute and continued study of cases by an indefatigable and patient observer. His labors belong chiefly, or at least characteristically, to that period when the subject was undergoing minute analysis, and hence we find him distinguishing nine or ten forms of epileptic insanity and as many of paranoia. He also dwells to some length on those cases in which two or more forms of insanity in the same patient may run simultaneous courses, each undisturbed by the other. In spite of the fact that psychiatry has undergone considerable change and development, mainly in the direction of synthesis, since the publication of the first edition of Krafft-Ebing's text-book, in 1879, it still remains unparalleled in its minute and exhaustive descriptions of mental states related to bodily disease, and as such is invaluable to the student, especially to such as have enjoyed but limited opportunities for clinical observation in person.

Atlas and Epitome of General Pathologic Histology. By Dr. H. Dürck, of Munich. Edited, with additions, by Ludwig Hektoen, M.D., Professor of Pathology, Rush Medical College, in affiliation with the University of Chicago. W. B. Saunders & Company, Philadelphia, New York and London.

In placing this volume before the medical profession, the author reflects the latest and most generally accepted views concerned in circulatory disturbances, retrogressive metamorphoses, reparative processes and tumors.

As an epitome the text is adequate and consistent. As an atlas it is singularly elaborate and instructive. The plates, which are accurately represented, artistically executed and beautifully reproduced, are placed throughout the subject-matter with studied care.

The book can be recommended as a valuable adjunct in acquiring a better understanding of pathologic histology.

BOOKS RECEIVED.

On Becoming Blind. By Dr. E. Javal. Translated by Dr. Carroll E. Edson. 12mo, 191 pages. Illustrated. The Macmillan Co., New York.

THE MEDICAL NEWS.

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ORIGINAL ARTICLES.

ETIOLOGY, DIAGNOSIS AND TREATMENT OF BENIGN STENOSIS OF THE PYLORUS.[1]

BY GEORGE EMERSON BREWER, M.D.,

OF NEW YORK.

IN response to an invitation from the President of this society, I shall present for your consideration and discussion this evening, a brief review of our present knowledge of the etiology, diagnosis and treatment of benign obstruction of the pylorus.

In accepting this invitation, I realize fully that I am addressing an audience made up largely of expert observers in this line of work. I also recognize the fact that my own experience in gastric surgery is a comparatively limited one. I may, therefore, be permitted to state at the outset that my reason for presenting this subject before this Society is not that I hope to enlighten its members by anything new or original, but simply to bring this important topic before you for your critical discussion, which cannot fail to be of value to myself as well as to the profession at large.

Although dilatation of the stomach due to pyloric stenosis has been known as a pathological entity for centuries and its association with vomiting, delayed and painful digestion recognized in certain instances, it was not until the latter part of the nineteenth century that its importance began to be appreciated, and the differentiation between the benign and malignant forms of the stenosis made.

In 1868, Victor Bros, in his Strassburg thesis, reviewed the subject of benign obstruction of the pylorus and gave a classical description of the symptomatology of a typical case of the disease due to gastric ulcer.

The following year Kussmaul began the use of the stomach tube in the treatment of this condition and led the way for his pupils, Von de Velden, Leube, Ewald, Boas and a host of others, who studied the effects of obstruction on the function of digestion, and furnished valuable data for diagnostic purposes in the estimation of the motility of the organ and the chemical analysis of the gastric contents.

The first effect of a moderate narrowing of the pylorus is obviously an increased peristaltic effort on the part of the muscular apparatus of the stomach, to propel the food into the duodenum. This in an otherwise healthy individual generally results in a compensatory hypertrophy of the gastric musculature, and while this compensation is maintained no untoward symptoms occur. Sooner or later, however, if the disease is progressive, this compensation fails and a certain quantity of the food is habitually retained in the stomach. As in the case of the urinary bladder, this inability of the viscus to empty itself gradually results in dilatation of the organ with atony of its muscular walls. Stagnation of the gastric contents results in fermentation—fermentation gives rise to the formation of acrid acids and gases, which in turn irritate the mucosa and eventually cause a subacute gastritis or catarrh of the stomach.

Relief to the overburdened and irritated stomach can only occur from vomiting. This takes place at first at infrequent intervals, later more regularly, and when the obstruction becomes practically complete, after each meal.

As the stenosis increases a progressively diminishing amount of food passes into the intestine, and as absorption of water from the stomach itself is practically *nil*, thirst, diminished secretion of urine, constipation and rapid emaciation occur. When the obstruction becomes complete, death from starvation is the inevitable result.

The foregoing description applies to a progressive stenosis resulting in complete obstruction. In certain instances, however, the disease advances up to a certain point and then becomes arrested. In these cases the symptoms will vary according to the degree of obstruction, and the muscular tone of the organ. In general it may be stated that a stomach which is unable completely to empty itself over night, will surely give rise to symptoms requiring treatment.

In considering the etiology of benign stenosis of the pylorus, we should, I think, follow the suggestion of Mayo, who maintains that lesions in the first two and a half inches of the duodenum should be included, as the pathological conditions producing stenosis in the portion of the duodenum above the papilla are practically identical with those of the pyloric region, and the resulting symptoms so similar that differential diagnosis is in most instances impossible except by exploratory incision.

The commonest cause of benign stenosis of the pylorus is undoubtedly ulcer. Gastric ulcer occurs at or near the pylorus with great frequency, most authorities agreeing that at least 75 per cent. of the lesions are found in this region. That duodenal ulcer is also of frequent occurrence is evident by the statistics of Mayo, who reports that the first portion of the duodenum was involved in 27 per cent. of his operated cases of ulcer.

A gastric or duodenal ulcer may produce a primary pyloric stenosis, either by the presence

[1] Read at the Annual Meeting of the American Gastro-Enterological Association, April 25, 1905.

of an acute inflammatory exudate in the surrounding tissues or at a later stage by marginal induration or cicatricial contraction. Not infrequently when the process involves the deeper tissues or where a minute perforation has occurred, a circumscribed or spreading peritonitis is developed, which, if recovery takes place, results in the formation of adhesions which give rise to stenosis from angulation or fixation of the pylorus to the other organs.

Obstruction of the pylorus by spasm, caused by the irritation of an ulcer in some other portion of the stomach is said to occur and to give rise to the same train of symptoms as organic stenosis, but as Stockton has pointed out, too much reliance must not be placed on this statement which at present rests only on an hypothetical basis.

Diseases of the gall-bladder are second in point of frequency in the causation of pyloric stenosis. The commonest lesion of the gall-bladder to produce this effect is cholecystitis with local peritonitis. This gives rise to secondary adhesions which produce angulation and fixation of the pylorus or duodenum in the same manner as the adhesions from a perforated ulcer.

Fistulous openings between the gall-bladder and stomach or duodenum may occur, as a result of suppurative cholecystitis. Through these openings large stones may occasionally pass into the intestine. The presence of these stones may, very rarely, give rise to obstruction, whereas the cicatricial contractions of the fistulous tract and the perigastric adhesions more frequently cause narrowing of the pylorus and duodenum.

A case illustrating the degree to which narrowing of the pylorus and duodenum may reach from such a condition is the following:

Case.—A man, fifty-four years of age, had numerous attacks of pain and tenderness in the right upper quadrant of the abdomen. Later he had gastric distress and vomiting. These symptoms increased rapidly in severity and he became emaciated, weak and anemic. When first seen by the writer he stated that he had lost fifty pounds in the previous two months. The abdomen was very much retracted and a tumor was felt in the pyloric region which did not move with respiration. Stomach enormously dilated, no free hydrochloric acid present; hemoglobin, 40 per cent.

On opening the abdomen, the gall-bladder, pylorus and duodenum were found fused together by dense adhesions. The gall-bladder was opened and found to contain a quantity of pus and seventeen stones. When these were removed, the examining finger passed through a narrow opening into a secondary cavity also containing numerous calculi. We at first thought we had to do with a double gall-bladder, but after a long and difficult dissection, it was found that the supposed accessory gall-bladder was in reality, a pouch formed by the first portion of the duodenum into which the suppurating gall-bladder had emptied. This cavity was separated above from the stomach and below from the second portion of the duodenum by two large, almost complete cicatricial strictures, each intimately associated with the inflammatory induration around the margin of the fistulous opening. On laying open this duodenal pouch thirty-six stones and a moderate amount of foul-smelling pus were evacuated. A pyloroplasty by the Finney method was performed, but the patient succumbed to the shock of the prolonged operation. In this case the occlusion had been practically complete for a number of weeks.

The presence of benign tumors at or near the pylorus, has occasionally been reported as giving rise to obstruction. The writer on one occasion found and removed a small adenoma from the anterior wall of the duodenum just above the papilla. Lipomata arising from the submucous layer of the stomach, near the pylorus, have occasionally been reported, some reaching a large size. Myomata papillomata and lymphadenomata have also been found but are exceedingly rare and as a rule too small to produce serious obstruction. A few instances are on record of a polypoid tumor with long pedicle, which would occasionally be carried into the pyloric orifice and produce intermittent occlusion.

More important than the preceding group are the hypertrophic stenosis. This condition has been described by a number of observers including Tilger, Boas, Habershon and Oettinger, and each has given it a different name. Practically all unite, however, in regarding the obstruction as one of hypertrophy and sclerosis of the muscular and submucous coats, causing great narrowing and rigidity of the orifice. The pyloric region is often so thickened that a distinct tumor may be felt through the abdominal wall.

Three varieties of the affection have been described: First, the congenital stenosis, in which there is thickening of the submucous coat with hypertrophy of the circular and longitudinal muscular fibers, but without lesion of the mucous membrane, obviously a non-inflammatory condition; second, the adult type which appears to follow a chronic gastritis in which the mucous and submucous coats of the entire stomach are involved, giving rise to a cirrhosis of the organ, and third, where the disease seems limited to the pyloric region. In the cirrhotic variety the capacity of the stomach is greatly reduced and dilatation is impossible, while in the third variety, dilatation is generally present.

The importance of syphilis as an etiological factor in the production of pyloric stenosis has been variously estimated by different authorities. Engel reports a syphilitic history in 10 per cent of all his ulcer patients. Stockton has reported several in which the symptoms have yielded promptly to antisyphilitic treatment, and numerous autopsies have demonstrated beyond a doubt that gummata and typical syphilitic ulcers may exist at or near the pylorus and give rise to more or less serious obstruction.

Among the rare forms of pyloric obstruction may be mentioned foreign bodies, masses of hair, wool or other non-absorbable substances which have been swallowed and rolled into large balls by the muscular movements of the organ, also benign tumors of the liver, gall-bladder ducts or pancreas pressing on the stomach or duodenum, enlarged lymph nodes and possibly kinking of the duodenum from gastroptosis or movable kidney. Mayo has described a volvular formation due to inflammatory shortening of the gastrohepatic omentum.

In considering the clinical history of pyloric obstruction it must be borne in mind that we may and frequently do have two distinct groups of symptoms; first, those due to the disease which gives rise to the stenosis, and second, those due to pyloric narrowing and the resulting gastrectasia and the chemical changes which occur in the retained gastric contents. The first effect of pyloric narrowing is retardation in the normal emptying of the stomach after an ordinary meal. This may give rise to no subjective symptoms, and the only indication of such retardation may be that furnished by the use of the stomach tube which shows that the viscus still contains a portion of the ingested food at a period when it should be empty. Riegel states that after an ordinary meal, the stomach should be found empty in seven hours. In mild degrees of motor insufficiency, food will still be found in the stomach seven hours after a meal, but not in the early morning after a light supper the previous evening. In general the degree of motor insufficiency may be estimated by the amount of food residue found at various times after the taking of a test meal.

Occasionally patients with mild degrees of motor insufficiency complain of a sense of weight and discomfort in the epigastrium after a heavy meal but not when a moderate amount of food is taken. There is, as a rule, no actual pain and the symptoms disappear as soon as the stomach is empty. In more advanced cases of stenosis, where compensation is present, the peristaltic movements of the stomach can occasionally be seen or felt through the abdominal wall. This may be associated with a subjective symptom which Kussmaul has described as peristaltic unrest. When the stomach begins to dilate and fermentation takes place, the patients complain of a greater degree of fulness and epigastric pressure after each meal. Eructations occur, which may be odorless or foul, from the presence of sulphureted hydrogen. Not infrequently heartburn is present from the occurence of fatty acids in the fermenting gastric contents.

Of all the symptoms of pyloric obstruction, however, vomiting is the most important and characteristic. It may occasionally occur in the earlier stages of motor insufficiency before dilatation has taken place, but when gastrectasia and fermentation are developed it is more or less constantly present, and in the most advanced cases it occurs after each meal.

It is characterized by the large amount of food expelled at one time and the fact that the vomited matter often contains particles of food taken the day, or several days, before. As a rule the vomitus is acid in taste and smell, and often foul from decomposition. When allowed to stand it generally separates into three distinct layers—the upper of froth, the middle of a grayish fluid and the lower of solid particles of food.

As vomiting gives relief in the majority of instances, patients not infrequently get into the habit of inducing it whenever the gastric distress is severe. In advanced grades of pyloric obstruction, the patients suffer greatly from lack of fluids. This gives rise to intense thirst, dryness of the skin and mucous membranes and a marked diminution in the excretion of the urine. Crämer is accustomed to estimate the degree of dilatation by the quantity of urine excreted, dividing his patients into three classes, the mild when 1,500 c.c. or more is excreted in twenty-four hours, those of medium severity when the urinary excretion is reduced to 1,000 c.c. and the severe cases when the excretion is 500 c.c. or less.

Loss of weight necessarily begins as soon as the stenosis reaches such a degree that the requisite amount of food is not forced into the intestine, it is usually progressive and in the end emaciation is extreme. Progressive anemia is present in all of these cases, the degree generally corresponding with the rate of emaciation.

In the later stages of gastrectasia patients generally complain of loss of appetite, headache, mental torpor and various paresthesias. In a certain number of cases tetany will develop, evidenced by the occurrence of tetanic contractions in the hands, arms and legs, with occasional trismus and transitory blindness. This frequently follows severe vomiting or an attempt to pass a stomach tube, and unless gastric drainage is at once instituted, the disease proves fatal in a large proportion of the cases.

With the exception of those cases where a tumor can be planted in the pyloric region, there are no physical signs which help us to a diagnosis in the early stages of benign stenosis. When gastrectasia occurs, however, physical examination frequently furnishes important data. Inspection will often reveal the outlines of a dilated stomach through a thin abdominal wall. Occasionally the greater and lesser curvatures can be palpated, and splashing may often be elicited at a time when the stomach should normally be empty. Distending the stomach with air or water will often enable us by percussion to identify its limits and thereby form a fairly reliable estimate of its size. In general it may be stated that with the lesser curvature in its normal position, when the greater curvature can be demonstrated at or below the umbilicus, dilatation is presnt.

The foregoing description applies only to instances of uncomplicated benign pyloric stenosis. It is perhaps the exception to find adult cases which present such a typical clinical history, as

the symptom complex in the majority of instances is modified by the occurrence of some preceding or accompanying pathological condition which gave rise to the stenosis.

In those cases due to ulcer therefore we are apt to have a history of digestive disturbance long before the signs of pyloric obstruction occurred. In the majority of instances such patients complain of more or less acute attacks of epigastric pain after eating, often with vomiting of acid material at the height of the attack.

They have generally restricted their diet because certain articles of food seemed to produce more distress than others, and as a result are frequently emaciated and anemic. There may be a history of hematemesis or melana.

In those cases in which the stenosis is due to the late contraction of the scar of an ulcer, or to peritoneal adhesions due to ulcer, there may be a distinct interval between the symptoms of ulcer and those of pyloric obstruction. In the great majority of cases, however, the history would indicate that the early symptoms of obstruction were due to the induration surrounding an open ulcer, and in these instances the cardialgia, eructations, epigastric tenderness and vomiting overshadow for a time the comparatively mild symptoms of early motor insufficiency. Under these conditions the pain is often more severe than in ulcer without obstruction, due to the mechanical irritation of the ulcer by the increased muscular action of the stomach to force the food into the intestine. While the pain is frequently limited to a small area in the epigastrium which is often exquisitely tender, it may radiate to the back, the breasts, to the neck or hypochrondriac regions. The suffering in these cases is often extreme until relieved by vomiting of an abundant acid material.

Hyperchlorhydria is present in practically all of these cases, as demonstrated by gastric analysis. Not infrequently there is in addition a more or less continuous secretion of gastric juice evidenced by morning vomiting of a cloudy acid fluid containing a few flakes of solid matter. Later when dilatation has occurred this morning vomiting contains remnants of food taken the evening before.

As in other cases of gastric ulcer, the symptoms may undergo marked variations in intensity, owing to care exercised in the diet and the employment of rest and other remedial measures.

It may happen that the symptoms of ulcer may cease entirely, leaving only those of a progressive gastrectasia; on the other hand the pain may persist throughout the disease to the end. In the later stages of the affection, the appetite which in the beginning with an abundant hyperchlorhydria was exaggerated, almost invariably is lost and there is instead a disgust for food of any kind.

In those cases of obstruction due to adhesions from gall-bladder suppuration, there is usually a history of attacks of pain in the upper abdomen, which, however, do not exhibit the same relation to the taking of food as in gastric ulcer. In these attacks the pain and tenderness are located chiefly in the right hypochondriac region and the vomiting when it occurs is mostly at the beginning of the attack. There is no evidence of hyperchlorhydria. In addition there is generally a history of one or more severe attacks accompanied by fever and other evidences of local peritonitis. The occurrence of jaundice is occasionally mentioned.

As the symptoms of gall-bladder and duct disease are practically always intermittent, with long intervals of quiescence, the presence of pyloric obstruction and gastrectasia, is generally indicated by the occurrence of more or less typical symptoms of this condition which, however, may at any time be interrupted by those of an acute gall-stone colic or attack of cholecystitis.

Although it would be quite impossible in the limited time at my disposal to review the symptomatology of all of the rarer lesions giving rise to pyloric stenosis, I desire to call attention briefly to one of the varieties of this malady which has not received from the profession at large the attention it deserves.

Congenital stenosis of the pylorus was first described by Beardsley, of New Haven, in 1788. Meltzer, in the *Medical Record* of July 20, 1898, reviews the literature of the subject and gives the clinical history of a case under his care, together with the appearances found at operation and the pathological report of the specimen obtained at autopsy.

Dorning has recently reported another case with typical symptoms, in which he was able by palpation to detect a pyloric tumor during life. He stated that at the time of his report, about sixty cases had been recorded. Meltzer states that the life history of these cases may be divided into three phrases: First, the period of simple muscular insufficiency; second, an attempt at compensation, and third, the stage of atony and progressive dilatation.

The clinical histories of the reported cases show a striking similarity, and correspond to the three periods described by Meltzer.

At first the child nurses with avidity but soon regurgitates the meal. After several such attempts the mother generally finds that if a small feeding only is allowed it may be retained. Vomiting may therefore be infrequent for a few weeks after birth, the frequency depending largely on the degree of stenosis. During this period the child is generally restless between feedings and shows evidence of constant thrist. Sooner or later the stage of atony and dilatation occurs and the vomiting becomes more frequent and exhausting. The child grows progressively weaker, emaciates and may develop stupor and other nervous symptoms. At this period the stomach can generally be demonstrated to be dilated and flaccid, the urine is scanty and constipation is marked.

The use of the stomach tube is of great value in confirming the diagnosis in these cases. The presence of food in the stomach two hours after a feeding, when associated with the above symptoms, is sufficient to establish the diagnosis.

In considering the treatment of benign pyloric stenosis it seems hardly necessary to say more than a few words to an audience the members of which appreciate so keenly the fact that the cause of all the untoward symptoms of this disease is purely a mechanical one, and can be relieved only by reestablishing a normal connection between the stomach and intestine. It would be a waste of time even to consider drugs, massage, electricity and lavage, which at best can only be regarded as palliative measures. With the exception of the few instances in which the obstruction is so light that the symptoms can be easily relieved by dietetic regulation, or in those exceedingly rare cases where the stenosis is due to a syphilitic ulcer or gummatous deposit, and which quickly respond to anti-syphilitic treatment, surgery and surgery alone can offer relief to these patients. In perhaps no other class of operations upon the alimentary canal have the results of surgical intervention been more strikingly satisfactory.

It will sometimes be possible to remove the causes of the stenosis by operation, such as peritoneal bands or adhesions, new growths or enlarged lymph nodes pressing upon the pylorus or first part of the duodenum, foreign bodies or benign tumors of the stomach wall. In the majority of instances, however, it will be necessary either to enlarge the contracted pyloric orifice by plastic operation or to create a new opening between the stomach and small intestine. Digital dilatation of the pylorus has been abandoned by surgeons.

The original pyloroplasty of Heinecke-Mikulicz is gradually giving way to other more radical procedures for the reason that recurrences after its employment were frequent. The operation of Finney and posterior gastro-enterostomy are the two procedures employed at present for the relief of pyloric stenosis. Finney's operation which consists in enlarging the pyloric opening by a plastic operation which unites the first portion of the duodenum with the adjacent wall of the stomach is the operation of choice in cicatricial stenosis where the tissues are not too much infiltrated, in all other cases gastro-enterostomy is to be preferred. The technic of these procedures is so well known that a description of it here would be superfluous.

As the mortality of these operations are capable in hands, where the physical condition of the patient is still fairly good, should be below 6 per cent. in benign cases, and as a permanent cure may be expected in the majority of cases, it is difficult to appreciate why the rank and file of the profession should not give their unqualified approval to this method of treatment and why it is not more generally practised.

CASE OF PEPTIC ULCERS AFTER GASTRO-ENTEROSTOMY CAUSING GASTRO-COLIC AND JEJUNO-COLIC FISTULAE, AND OF SPONTANEOUS CLOSURE OF GASTRO-ENTERO-ANASTOMOSIS.[1]

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THE history of the case which I want to report to you presents a remarkable development of gastric disturbances following a gastro-enterostomy, performed in December, 1901, on a man then forty-four years of age.

During the three years previous to this operation, the patient had suffered periodically from more or less severe gastric pains. Three times severe hematemesis had occurred and once there were all the symptoms of perforation, followed by localized peritonitis in the pyloric region. There was hyperacidity, some motor insufficiency and a pyloric tumor, which during the time of pronounced disturbances could easily be felt as a hard mass and which as a rule became smaller and less distinct after treatment.

Three times a strict treatment for ulcer had been carried out and in addition to this at several periods local treatment, lavage with silver nitrate, bismuth, etc., had been used. Once a long course of specific treatment was given because one of the patient's former physicians had diagnosed syphilis on account of an eruption on the lips and hands which he had treated several years previous to the development of the gastric symptoms and which had yielded only to iodide of potassium. The patient and his former physician denied syphilis most emphatically. However, since there was a difference in the size of the pupils both of which reacted poorly to light, the mercurial treatment was given a trial with no perceptible effect upon the ulcer. Nine months after the specific treatment, the third and most profuse hematemesis took place.

After renewed internal treatment for ulcer following this hematemesis had been rigidly carried out for six weeks, the patient vomited great quantities of strongly acid, fermenting masses, mixed with blood, and showed visible gastric peristalsis. These symptoms of increasing pyloric stenosis and the recurrence of hematemesis in spite of all the internal treatment, led to the operation.

At the operation, performed in December, 1901, by Dr. Lange, the pylorus was found to be thickened and its posterior wall adherent. Its anterior surface showed areas of marked thickening and opacity of the serous covering, one spot, probably the seat of the former perforation, being distinctly retracted. Retrocolic posterior gastro-enterostomy was performed. A very high jejunum loop had been taken and since the angle caused by the fixation seemed rather acute, the

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afferent and efferent portions of the jejunum were connected by an entero-anastomosis. Silk sutures were used. Recovery was smooth, the only disturbance being caused by pronounced constipation during the first week. During the following three months there were no gastric symptoms and the patient gained 27 pounds. After this time gastric disturbances recurred. At first these were of mild character; pressure and discomfort about an hour after meals, but were followed later on (May, 1902) by more severe abdominal pains regularly coming on in the afternoon. On examination, the pyloric resistance was distinctly palpable, the stomach appeared large and atonic, and the stomach contents showed pronounced hyperacidity.

In October, 1902, severe cerebral symptoms appeared: difficulty in speaking and writing, defective memory, muscle tremor, exaggerated reflexes, papillitis on both sides, convulsions and periods of unconsciousness with complete amnesia afterward. Energetic mercury treatment was given and large doses of iodide of potassium for a long period. In February and March a few shorter attacks of mental disturbance occurred. After this there were no more cerebral symptoms.

In April, 1903, the abdominal pain which had hitherto been of a moderate character, became very severe. It generally came on in the afternoon or at night and was of such severe character that nothing but morphine would relieve it.

As a rule this pain was located in the upper abdomen, but at times it irradiated into the lower. While it lasted, the transverse colon could often be felt as a stiff, sausage-like tumor, which became softer when the pain grew less. This feature was especially noticeable after the administration of morphine. One could often feel gas escape with the relaxation of the tumor.

For periods of weeks and months the pain came on almost daily. There were other periods of weeks and even of months of perfect freedom from abdominal pain, especially in the summer of 1903 and 1904, while the patient was in the mountains. In November, 1903, six months after the abdominal pain first became severe, the patient complained for the first time of sulphurous taste and belching for several days and then vomited large quantities of fluid fecal matter. Lavage of the stomach was begun. The vomiting was not repeated but the complaint of fecal taste and the finding of fecal matter in the stomach became more and more frequent and finally, during the winter of 1904-1905, became constant. At first there were periods of weeks and months when stomach lavage performed at any hour of the day showed absolutely no fecal matter. During such periods, which were noted as late as the summer of 1904, examination of the fasting stomach and after test-meals showed pronounced hyperacidity and good motor activity, or at most, motor insufficiency of a mild degree. Even at the periods when fecal matter was found in the stomach, there were no signs of stagnation of food taken by mouth.

At the periods when fecal matter got into the stomach, it was often found in the fasting organ. Very often it entered the stomach only after a meal. The patient could recognize it by the fecal belching and could verify it by removing fecal matter from his stomach by the tube, even when the stomach had been cleaned by lavage before the meal. The same phenomenon was observed during lavage. After the wash-water had returned from the stomach perfectly clear several times, it would suddenly become mixed with fecal matter. Sometimes the flow of fecal matter would continue as long as the washing was kept up. The quantities of fecal matter thus removed by the tube were often very large.

Occasionally small formed feces were found. As a rule, however, the fecal masses were more fluid; they were in every way like the fecal matter obtained by defecation, in color and smell, in macroscopic and microscopic appearance. When removed from the stomach in the morning or a number of hours after meals, they never showed undigested food remnants.

The feces obtained from the rectum were large, semisolid, mostly light-gray, often acid from gas fermentation, showed enormous quantities of bacteria and were always well digested. Undigested food remains were never found, even when the stools were washed through a sieve. The chemical examination showed neither hydrochloric acid nor pepsin; albumin digestion examined by Mette's method, proved negative. Defecation was on the whole regular but at times, especially during attacks of severe pains, constipated.

There was no stagnation in the stomach of food taken by mouth; fecal matter would enter the stomach, but we could not demonstrate that stomach contents entered the colon. The existence of a gastro-colic fistula was finally proved by the following test:

A prolonged lavage of the stomach with consequent removal of great quantities of fecal matter was directly followed by a prolonged lavage of the rectum and colon. When the wash-water from the colon appeared somewhat clear, a suspension of lycopodium stained by gentian violet was introduced into the colon under slight pressure. A second lavage of the stomach carried out immediately afterward again produced great quantities of fecal matter, which on microscopical examination proved to be thoroughly mixed with the stained lycopodium.

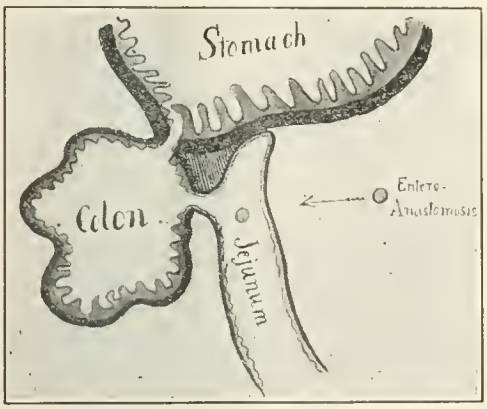
During the winter of 1904-1905 the condition became unbearable. The severe abdominal pain occurring at all hours of the day and at night made the patient a confirmed morphinist. Three more courses of specific treatment (April, 1903, June, 1903, January, 1905), had no effect; nor did any other treatment give relief.

The patient, being very much annoyed by the

constant flow of fecal matter into the stomach readily consented to the proposed operation.

The operation performed by Dr. Gerster (March 7, 1905), showed the middle portion of the transverse colon to be somewhat stiff and narrowed. It was adherent above to the larger curvature of the stomach, and posteriorly to that loop of the jejunum which had been used in performing the gastro-enterostomy. The apex of this greatly dilated loop was hidden behind the colon. After turning up the colon, we found a connection between the posterior wall of the

Fig. 1.*



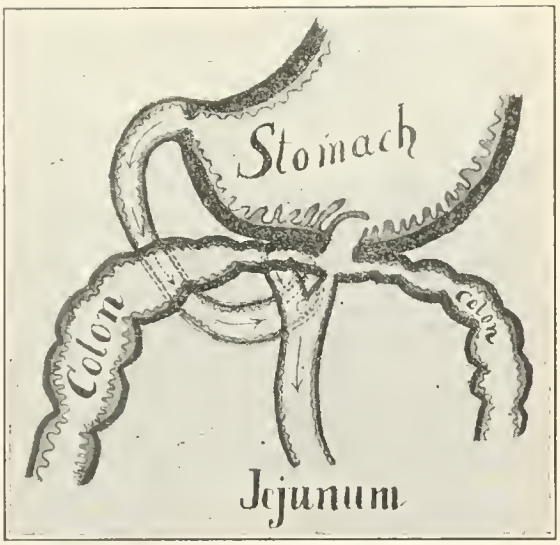
colon and a diverticulum of the jejunum, which must have been formed by traction. On section, this connection proved to be an open channel of considerable diameter between the cavities of the colon and the jejunum. The edges of the openings were soft and covered by mucous membrane. They showed neither infiltration nor ulceration. Both openings were closed by a Lembert suture. Then the colon was reflected and after the removal of a number of omental adhesions, it became evident that there existed another and larger connection between the upper surface of the transverse colon and the posterior wall of the stomach, which on dissection was also found to be an open channel uniting the cavities of the stomach and the colon. These two apertures, the edges of which were also soft and covered by mucous membrane, were sutured. It then became evident that the two openings connecting the colon, on one side with the stomach and on the other with the jejunum, were quite near together. The colon, which was already somewhat narrowed, became still narrower in consequence of this double suturing, to such an extent as to cause fear of a pronounced stenosis.

We had the choice of resecting this narrowed portion of the colon or of connecting the ascending colon with the sigmoid flexure. The latter proceeding was adopted because the intimate and extensive adhesions of the colon to the posterior parieties made resection a very hazardous undertaking. Since the operation had already lasted three hours, the Murphy button was used.

Recovery seemed uninterrupted during the first six days after the operation. Suddenly, on the sixth day, symptoms of perforation developed, followed by collapse. Immediate laparotomy showed that the perforation was caused by a continued necrosis of the sigmoid flexure, issuing from the site of the Murphy button.

I quote a few points from the post mortem: "On studying the relation of the fistulæ after removing the sutures, we found: (1) A hole in the stomach, surrounded by enormously hypertrophic folds of the gastric mucous membrane, one of which covered the hole from the gastric side completely and acted as a valve. (2) That the two holes in the colon were quite close to each other. In cutting the sutures the intervening bridge was destroyed. The upper hole corresponded to the hole in the stomach, and the lower one to the opening in the jejunum. The gastro-colic and the jejuno-colic fistulæ were opposite each other, so that a glass probe could be passed directly from the stomach through the two holes in the colon into the jejunum; (3) That the hole in the jejunum was situated in the diverticulum of the efferent portion, which was very much dilated; the afferent portion was short and formed a straight line from the plica duodeno-jejunalis toward the stomach.

Fig. 2.*



Absolutely no traces could be found of the opening between the jejunum loop and the stomach, which was made at the primary gastro-enterostomy. The apex of the jejunum loop was adherent to the lower surface of the transverse mesocolon, but it was entirely separated from the stomach. The opening of the entero-enterostomy, though small, was still patent: it was in close vicinity to the jejuno-colic fistula, which was about 5 cm. below the apex of the jejunum loop. The pylorus was patent, but at

* The drawings do not give the exact anatomical relations and are meant to be only diagrammatic. The jejunum-loop is here shown attached to the stomach, in order to demonstrate the situation of the former gastro-entero-anastomosis.

one point markedly narrowed, showing on its inner surface the scar of the old ulcer.

The transverse colon at the level of the fistulæ was thickened and measured only 7 cm. in circumference, while the hepatic part of the transverse colon was dilated to 10 cm. circumference and thinned out. The descending colon measured only 4¼ cm.

There were no anatomical evidences of syphilis, either in the vessels or the viscera (including the brain and the testicles). The larger branches of the abdominal aorta showed slight arteriosclerotic changes. The smaller ones and the thoracic aorta and its branches were free.

In reviewing this case, we must consider separately: (1) The closing of the gastro-entero-anastomosis. (2) The formation of the fistulæ.

The gastro-entero-anastomosis had entirely disappeared. The closing of the anastomotic opening was so complete that it was impossible to locate it. Even the connection between the jejunum-loop and the stomach did not exist any more; the jejunum loop was entirely separated from the stomach. We cannot say how soon after the operation the anastomosis had closed up. So far only a few anatomical facts have been reported, which give information about the final outcome of gastro-entero-anastomosis in benign cases.

G. Gayet described a case which showed the same conditions as our case. He found at a second operation performed one year after gastro-enterostomy, that the first opening had completely closed, that the intestine had been absolutely separated from the stomach, and was only kept adherent to the transverse mesacolon.

Mayo, Feldmann, Robson and Moynihan have reported cases in which a second operation was performed, because the anastomosis had closed. In most of these cases it is simply stated that the opening had contracted; in only one case is it specifically stated by Robson and Moynihan, that the opening had completely closed. There are further a few reports of findings at postmortems: Ferrari found in one case, three years after operation, an anastomosis of only 2 mm. diameter; in another case, six months after operation, an opening of 4 mm. diameter. Jaboulay reports an autopsy after six months, another after a year, with the opening very much restricted. In another group of cases, the opening was found still patent; in Cordier's, even six years after the operation. I saw the opening patent in a case (not published); two years after the operation. More facts must be obtained before we can explain why the anastomosis remains open in one case and closes in another. The complete disappearance of all traces of the anastomosis in our case is certainly very remarkable.

In regard to the development of the fistulæ I would like to suggest the following explanation: The abdominal pains from which our patient suffered so severely must be attributed to a new gastric ulcer which developed near the former gastro-entero-anastomosis. We may class this ulcer with the group of peptic ulcers following gastro-enterostomy. Tiegel has recently published a review of 22 such cases, in which the peptic ulcer was demonstrated either at the post mortem or at a second or third operation. In most of them the peptic ulcer was found in the jejunum. In some it developed directly on the edges of the gastro-entero-anastomosis. In one case, reported from Czerny's Klinik, a peptic ulcer had developed in the stomach near the gastro-entero-anastomosis, caused adhesions to the colon, and had then perforated into the colon, thus forming a gastro-colic fistula.

The same process, in all probability, took place in our case, but in addition, after the gastro-colic fistula had developed, a second peptic ulcer formed in the colon, opposite the fistula. This second ulcer in turn led to adhesions to the jejunum, into which it perforated, thus forming the jejuno-colic fistula. As a result of these ulcerative and perforating processes adhesions were formed between the stomach and colon, and the colon and jejunum leading to a narrowing of the involved part of the transverse colon.

During life this section of the colon could often be felt as a sausage-like tumor, stiffened by spastic contractions. The spasms were probably caused by the irritating effect of the highly acid gastric secretion on the colon, in the same way in which pylorospasm is caused in case of pyloric ulcer. The frequent spastic contractions of the colon may have contributed to another effect of the adhesive processes, *i.e.*, the formation of the diverticulum of the jejunum by traction.

The fact that we did not find undigested food in the feces is fully explained by the presence of the large fold of the gastric mucosa which, acting as a valve, easily prevented the passage of formed masses from the stomach into the colon, although it could not prevent the flow of gastric secretion into the colon.

The manner in which these peptic ulcers develop after gastro-entereostomy is not yet clear. According to Tiegel, it does not seem that the technic of special methods has great influence, since a study of his 22 cases shows that they occur after all the different methods of operating. Since they occur only in cases of benign diseases of the stomach, it is probable that on the whole the conditions for the development of such peptic ulcers are the same as those for the development of the primary ulcer, *i.e.*, chronic gastritis, hyperacidity, circulatory disturbances, etc. The locality, however, in which the peptic ulcer appears, makes it certain that the operation itself is the direct cause of its development. Perhaps lesions of the mucous membrane, created at the operation, form the basis for the peptic ulcer. Tiegel names arteriosclerosis as a contributory cause. It hardly touches the question in our case, since the arteriosclerotic changes were only moderate and con-

fined to the larger branches of the abdominal vessels.

We have further to consider the question of syphilis in our case. Even if we assume that the patient at one time had syphilis, there is nothing that would permit us to connect it with the formation of the gastric ulcers and the fistulæ. A thorough anatomical examination of the abdominal viscera showed no signs of syphilitic processes, nor did the repeated and prolonged anti-syphilitic treatment yield any apparent result.

At present, syphilis is frequently accused of causing gastric ulcer. However, in only a comparatively small number of cases, has this connection been proved by anatomical examination (Flexner-Trinkler). The mere fact that a patient with gastric ulcer suffers or has previously suffered from syphilis cannot be taken as sufficient proof. In our case the thought of syphilis was for a long time misleading in the interpretation of the predominant symptoms. The attacks of severe abdominal pain, which occurred after the development of cerebral symptoms, we at first regarded as gastric or enteric crises caused by syphilitic disturbances of the cerebro-spinal system. Even when fecal matter was found in the stomach, it was considered doubtful whether we had to deal with organic or only functional disturbances, because the fecal matter was found only during certain periods, while at other periods of weeks and months the stomach was free, and also because the patient showed other symptoms of hysteria. The lycopodium test settled this question definitely, proving the presence of a gastro-colic fistula.

It is probable that a knowledge of the frequency of peptic ulcer after gastro-enterostomy would have made clear the true nature of the disturbances in our case before the post mortem.

The development of peptic ulcer after gastro-enterostomy is by no means rare. The 22 cases collected by Tiegel are only cases in which the peptic ulcer was demonstrated at a second or third operation, or at the post mortem. Eight of these 22 cases had shown absolutely no symptoms until suddenly perforation occurred. We may, therefore, conclude that in all probability a great number of cases escape detection.

We ought to bear in mind the possibility of peptic ulcer, whenever gastric disturbances recur after gastro-enterostomy. In fact, we should keep it in mind whenever gastro-enterostomy has been performed and regulate accordingly the treatment after the operation. The great immediate relief after such operations and the apparent immunity with which ordinary meals are digested, too often leads the surgeon to allow a liberal diet. It should be remembered that the chronic gastritis and the hyperacidity which accompany the primary ulcer, do not disappear immediately after operation, and that if not treated properly they may contribute to the development of new ulcers. The further surgical treatment of peptic ulcer following gastro-enterostomy has given very poor results. Complete recovery is rare; fatal issues frequent.

A careful consideration of all these facts should tend to restrict the indication for gastro-enterostomy, which otherwise gives such excellent results in certain benign gastric diseases.

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SOME OBSERVATIONS ON THE RELATIONS OF THE GASTRO-INTESTINAL TRACT TO NERVOUS AND MENTAL DISEASES.[1]

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As I have not the honor of being a member of the American Medico-Psychological Association, or even a neurologist, I assure you that I appreciate all the more the invitation of your secretary, my friend, Dr. Dent, to read a paper before you. I have selected as my title, "Some Observations on the Relations of the Gastro-Intestinal Tract to Nervous and Mental Diseases." You are all doubtless familiar with the investigations of Bouchard, Vaughan, Novy and Herter and many others, on the subject "auto-intoxication," and it must be evident to you that my remarks will be entirely based upon this theory. This field opens up enormous possibilities, and although much good work has already been carried on, I believe the subject to be really in its infancy. For your complete understanding, it would seem to me to be advisable first to refer to the physiology of digestion.

There are certain inorganic ferments contained in the bile, saliva, gastric juice, pancreatic juice and intestinal juice, which are a part of the human organism at birth. There are furthermore many organic ferments which are immediately acquired after birth, and which play an important part both in the physiology and in the pathology of the gastro-intestinal tract. At birth, this tract is sterile, as is confirmed by examination of the meconium. It is first infected in the new-born infant by the swallowing of air, and then with the bacteria of the food and the saliva. The feces of the adult and nursling contain bacteria to the extent of approximately one-fourth to one-third of the dried weight of the excretion—which would sum total many millions. With normal digestion, fermentation of the carbohydrates in the small intestines is produced by the micro-

1 Read at the Sixty-first Annual Meeting of the American Medico-Psychological Association, at San Antonio, Texas, April 21, 1905.

organisms therein to a physiological degree, the organic acids, lactic and acetic, the derivatives of such fermentation, acting as a stimulus to normal peristalsis. These acids prevent the putrefaction of albuminates within the small intestines, and partly check the decomposition of the carbohydrates. The putrefaction of the albuminates physiologically takes place in the large intestine, the contents have an alkaline reaction. Here are developed skatol, which gives the odor to the feces, indol, phenol and various gases, and the other products of putrefaction. The *Bacillus coli communis* is believed to be an important factor in these putrefactive processes, and the production of indol depends largely on the activity. It is not a product of pancreatic fermentation as was formerly supposed. In this viscus also, a small proportion of fat is decomposed into glycerin and fatty acids, by the bacteria. When carbohydrates are present, as well as proteids, the colon bacilli ferment the carbohydrates first, and no indol is manufactured until this is nearly completed. Undoubtedly, putrefactive bacteria of various types are at all times present in the stomach and small intestines, but their activity is inhibited, until conditions favorable to their development arise. Thus normal fermentation of carbohydrates in the small intestine has this effect.

The first inorganic ferment which we find, is in the saliva, and this acts for the transformation of the carbohydrates. We must remember that proper mastication of the food, and care of the teeth, all have an important bearing on digestion. Acid fermentation in the mouth interferes with the action of the saliva, and, moreover, it has been demonstrated, that cleansing the mouths of nursing infants will, alone, diminish fermentative processes in the gastro-intestinal tract.

In the stomach we have the combined action of hydrochloric acid and the ferment pepsin on the proteids; the rennet ferment curdles milk and unless excessive hyperacidity be present, further fermentation changes occur in the sugars. Besides this, a small percentage of the fats is split into fatty acids. Meltzer has demonstrated that only a small quantity of water is absorbed from the stomach. Excessive hydrochloric acid, moreover, checks further changes in the sugars.

The motor functions of the stomach and intestines are of great importance. A small meal, such as a soft-boiled egg, a slice of toast and a glass of water, will pass through the stomach in about two hours; and at the end of this time, under normal conditions, only a small amount of gastric juice can be aspirated. About the same period of time, two hours, is consumed in the passage through the small intestines, and for about twenty hours, the final products remain in the large intestine before expulsion from the anus.

Normal peristaltic action of the stomach and intestines are, therefore, most important factors in the prevention of abnormal fermentation or putrefaction.

With atony of the stomach we have as a result motor insufficiency and stasis. It has been demonstrated that the presence of free hydrochloric acid, even in considerable quantities, does not prevent gaseous fermentation or putrefaction, if stasis be present. Simple atony of the stomach will often progress to chronic dilatation, and, in fact, I believe it to be a frequent course, if left untreated. With this dilatation, there may be increased fermentation or putrefaction. Butyric acid may be produced. This acid has a distinctly depressive effect on the central nervous system. Together with lactic and acetic acids, its presence indicates gastric stagnation, destruction of glandular elements by malignant or other disease, putrefaction or fermentation. Butyric acid is classified among substances acting as autotoxins. Hydrogen sulphide (H_2S) at times is found in dilated stomachs, together with other gases, the absorption of which cause toxemic symptoms.

In a recent work by Dr. Wm. H. Thomson, entitled "Graves' Disease, With and Without Exophthalmic Goiter," the author holds that gastro-intestinal toxemia is the cause of this disease, and describes some twenty-eight symptoms occurring in cases both with and without goiter. Curiously enough, ethylidenediamin, a ptomain found at times by Kulneff, in the liquids of the stomach, in dilatation of that organ, when injected into mice and guinea-pigs, will produce exophthalmos and some symptoms found in Graves' disease. This is of interest, and certainly suggestive. Mold in the stomach, hypoacidity, anacidity, chronic gastritis and achylia gastrica, may be found in dilatation of the stomach. It can thus be readily understood, how perversions of the gastric digestion may be a marked causative factor in the production of additional disturbances in the intestinal tract below, and be productive of excessive fermentation, or of putrefaction. A careful examination of the secretions and motor functions of the stomach is, therefore, one of the first requisites for scientific research into auto-infection from the gastro-intestinal tract.

Under normal conditions, when the chyme enters the small intestine, its reaction is acid, due to the hydrochloric acid contained therein. The bile is one of the chief factors in gradually altering this reaction to neutral or alkaline. It strongly supplements the action of the pancreatic juice in emulsifying fats and its absence, or diminution lessens this function. It, furthermore, precipitates the pepsin from the chyme, and allows it to be the more readily absorbed. Some consider that it has antifermentative and antiputrefactive powers, and that it helps maintain the nutrition of the epithelial cells. The bile exercises a distinct effect on the peristalsis of the intestines and certain noxious products are by it eliminated from the body.

The pancreatic juice contains an amylolytic ferment, a lipolytic ferment and a proteolytic fer-

ment, with which all are familiar. They act in a neutral or alkaline medium, though small quantities of acetic or lactic acid seem to favor their activity. The organic ferments, existing in the small intestine, aid in the production of these acids. According to Ewald, prolonged action of the pancreatic juice may produce hypoxanthin, but more probably it is due to excessive putrefaction. (Methyl guanidin results from the oxidation of creatin and creatinin and it illustrates how a comparatively non-poisonous substance may be changed into a violent poison by bacterial action. On injection of this substance into guinea-pigs there appear fibrillary twitchings, rapid respiration, dilatation of the pupil, dyspnea, labored breathing and clonic convulsions. All these phenomena are suggestive of epileptiform attacks. Creatin is found in muscle; creatinin, a derivative, is also derived from meat taken as food and appears normally in the urine. It is increased by meat diet, in diabetes, various fevers, such as typhoid, etc., and is diminished by anemia, etc.) Methyl guanidin results therefore from putrefactive processes in the small intestine and probably from the large intestine as well. This is a leucomain, which causes increased nervous irritability and tetanic convulsions, a fact of interest. During the process of normal amylolytic fermentation, organic acids are given off which are an aid to stimulating intestinal peristalsis, and these acids are of service in checking putrefaction. Peristalsis of the intestine also renders putrefactive changes less likely. Stasis of the intestine is an aid to putrefaction, just as is motor insufficiency in the stomach. Butyric acid and hydrogen sulphide are autotoxins, which may also be produced in the small intestines. The intestinal juice is claimed to augment the activity of the pancreatic ferments, according to Pawlow, and to help neutralize some of the acids formed by the fermentation of the carbohydrates. The reaction in the lower jejunum and ileum is acid. When the intestinal contents pass into the colon, the reaction becomes alkaline, fermentation stops, and putrefaction begins, and the fecal odor appears. In the large intestine great absorption of water occurs, the albuminates are taken up, as are also sugars and fats to a degree.

Marked auto-infection can occur from this viscus. Among the ptomains found after prolonged stasis are cadaverin and putrescin, which give the symptoms of muscarin poisoning. Moreover, indol, of which tyrosin is the chief source, is here developed. Herter has administered it to animals and observed cardiac and respiratory depression, marked contraction of the pupils, clonic spasms, and increased reflex irritability. Small quantities taken daily, for several weeks, produced nutritive changes, frontal and occipital headaches, colic, diarrhea, unnatural mental activity, and a tendency to the neurasthenic state. Indol is absorbed from the intestines, and forms indoxyl-potassium sulphate, or indican, and is so eliminated in the urine. The causes of indicanuria are excessive proteid diet, catarrh of the small intestines, causing alterations in the mucosa and increased intestinal putrefaction therefrom, typhoid, cholera, etc., constipation, alimentary putrefaction, decrease of normal digestive fluids, intestinal obstruction and peritonitis. Certain drugs, such as salol, salophen and creosote will cause its appearance, whereas urotropin will diminish it.

Regarding the urinary test for this condition, Jaffe's is the one frequently employed. Rosenbach's test, which consists in boiling the urine with nitric acid, gives a Burgundy-red. This also demonstrates putrefactive changes, but not invariably that indican is one of the elements. This sometimes occurs when no indican is found by Jaffe's test. The result is due to substances of a like class. Other conditions of the urine occur as a result of these toxemias from the gastro-intestinal tract, the appearance of albumin and casts, or diminished urea excretion. The kidneys may become damaged from these toxins, and in turn, toxemia from the kidneys may result. We must remember that absence of indican in the urine does not invariably indicate absence of putrefaction, as in diarrhea, the indol may be to a great extent eliminated. In some cases even when constipated, there are no evidences of indican, even when there are clinical signs of abnormal putrefaction. This demonstrates that there are other putrefactive substances besides indol. Finally the functions of the liver and its relations to toxemia must be briefly considered. We have already described the action of the bile in the intestines. The liver acts as a store-room of the organism, for peptones, and sugars in the form of glycogen, these substances being kept there until their final use in the system. It excludes poisonous matters from the general circulation by removing them from the portal vein and excreting them by the bile. Thus, Herter demonstrates that the liver is the chief organ for the removal of indol. Various poisons and other toxins, as of typhoid, etc., are similarly destroyed, or chemically changed. Therefore, any diminution of the functional mass of the liver, or interference with its functions, impairs this property and toxemia results.

The bile itself, when absorbed into the system, acts as a poison, and produces a definite toxemia. Moreover, catarrhal conditions of the intestines will often cause obstructive jaundice; or the colon bacillus may become a source of infection of the ducts and gall-bladder. Insufficiency of the biliary secretion, or the absence of bile from the intestinal tract, favors in turn those conditions which result in auto-intoxication—due to the induced obstinate constipation, from the absence of its antiseptic and peristaltic stimulant effect, and we have the well-known symptoms of bilious indigestion. You are all familiar with the slow pulse, and other symptoms of jaundice, unquestionably due to auto-intoxication.

Cholin, under normal conditions, is found in

the bile as well as in the blood and brain and, in intestinal disorders its amount is increased and it may appear in the urine. In dilute watery solutions it may be transformed into neurin which is still more toxic. Large doses of cholin cause nearly instantaneous death in cats and rabbits. In experimental poisoning, there are dilatation of the peripheral blood-vessels, lowering of the blood pressure, salivation, spastic contractions and stoppage of the heart in diastole. It is an important factor in auto-intoxication on account of its relation to nervous disorders. Nerin, a derivative of cholin, on injection into animals, causes dyspnea, salivation, mydriasis, irregular and labored respiration, unconsciousness and clonic convulsions. Muscarin is believed to be often associated with cholin and it also causes convulsive seizures. It is also found in mushrooms and in decomposing fish. All these substances produce epileptiform seizures.

It is interesting to note that hepatic disease may be produced experimentally by substances allied to the autotoxins, thus in the production of hemoglobinemia by the injection of free hemoglobin, or of distilled water, jaundice is produced. Furthermore, poisons circulating in the blood cause a change in normal bile, in which it increases in viscidity, causing agglutination of the walls of the bile ducts, obstruction of their lumen, and consequent retention of bile within the sac. Stadelmann was able to produce a jaundice experimentally in animals by poisoning them with arsenureted hydrogen and toluenediamin, and found that there was an enormous increase in the biliary secretion, and that it was very thick and tenacious. Autopsies showed no catarrh of the duodenum, nor obstruction of the common duct. Moreover, the bile acids, if injected, cause disintegration of the red blood corpuscles, with liberation of hemoglobin. They delay the coagulation period of the blood, and reduce motor and sensory irritability, and may cause coma, insensibility and death.

It is evident, therefore, that the liver cannot produce normal bile from abnormal blood; and the fact that jaundice is caused by exposure to cold, syphilis, typhoid, phosphorus and other poisons, shows how easily the secretion of the bile is altered, and suggests that intrinsic poisons, which are often hemolytic in their action, may act a causes. Toxic materials absorbed from the intestinal tract, or from the urinary tract, in addition, may cause altered secretions, and the retention of bile from its own viscosity may ensue. The absorption of bile is, therefore, a serious complication, when surgical operations are necessary, owing to the increased danger of hemorrhage on account of the lengthened coagulation period. In fact, hemorrhages from the various organs at times ensue, even subcutaneous in character; a condition like purpura hemorrhagica. For this condition, large and frequent doses of calcium chloride have been recommended. Moreover, the toxemic condition causes these patients to take anesthetics badly, and renders them liable to shock and collapse, and they have little resistant powers against sepsis and disease.

Having thus described the relations of the gastro-intestinal functions to toxemia, at this point I wish to call to your attention several important propositions: (1) that epileptiform seizures, or even true epilepsy, may in some cases result from auto-infection; (2) that in many cases of nervous or mental diseases, derangements of the gastro-intestinal functions with resulting auto-infection may aggravate the original condition from which the patient may be a sufferer, and thus create a vicious circle; (3) that it is our duty as physicians, as much to our poor asylum, as to our private patients, to place them in the best possible physical condition.

And, finally, that on the patient's admission to such institution, a thorough investigation should be made in each individual case, into the existing conditions of the gastro-intestinal tract, and appropriate treatment be instituted in each; for by this means alone, can a scientific study of the relations of toxemia to nervous and mental diseases and the results of treatment be obtained. My friend, Dr. Dent, is the first one to appreciate the value of this method; and, as I shall describe to you later, it has already been instituted at the Manhattan State Hospital, West, Ward's Island.

I shall first consider epileptiform convulsions and epilepsy, resulting from toxemia from the gastro-intestinal tract. I judge that you are all familiar with the fact that the carnivora are susceptible to convulsive seizures from dietetic disturbances, whereas the herbivora are exempt. It is, furthermore, interesting to note, that the administration of meat to young dogs will often be productive of convulsions. The intestinal walls of infants permit the passage of proteids, whereas those of adults do not, which may account for the greater frequency of nervous manifestations in children. Moreover, red meats in every event tend to aggravate nervous conditions, and it is customary, in the modern treatment of epilepsy and in many nervous diseases largely to eliminate them from the dietary. I have, furthermore, noted in my own cases of epilepsy resulting from toxemia, that the patients were large eaters, especially of the red meats.

Some thirty years ago Meynert attributed epilepsy to the accumulation of a toxic substance of a proteid nature. The convulsive element is very prominent among the various autotoxins developed in the intestinal canal, notably with hypoxanthin poisoning, with methyl guanidin and with neurin, the symptoms of which we have already described. The studies of Ceni on epilepsy also demonstrate that it is of autogenous origin and the fact that no immunity occurs from repeated attacks and that the serum which he devised has no inoculatory power shows that the process is not bacterial in its nature. It would seem, as will now be demonstrated, that certain cases at least must have as their source, auto-

infection from the gastro-intestinal tract. I shall first consider epileptiform seizures in the young.

In our study of convulsive seizures in infants and young children, resulting from the administration of improper food, or from overloading the stomach, it was possible to distinguish two classes of cases—gastric and enteric. In the gastric cases, the convulsive seizures come on a short time after the administration of food, half an hour to an hour, or even less, and emesis often produces immediate relief. I have noted acute dilatation (distention) of the stomach in these patients. Just as in adult cases, to which I shall shortly refer, I believe, this acute dilatation, to be caused by auto-infection, resulting from fermentative or putrefactive processes in the stomach. Such attacks, continuously repeated, may predispose to the convulsive habit, and become a factor in the production of epilepsy. Furthermore, repeated attacks may tend to render the stomach atonic, and may result in chronic dilatation, with chronic toxemia as a result. I have referred to this class of cases in my article, entitled "Observations on Dilatation of the Stomach on Gastroptosis," MEDICAL NEWS, August 6, 1904. In the enteric type, the convulsions occur several hours after the administration of food, and are relieved by the use of an enema. These result from toxemia from the intestinal canal. Castor oil or calomel should then be used as adjuvants.

We may have, instead of these well-defined types, a combination of the two. Holt and many others believe that intestinal putrefaction, exciting convulsions in young children, is an important factor in the production of epilepsy. Repeated convulsions certainly predispose to the convulsive habit. On the other hand, chronic dilatation of the stomach in the young, may result from improper feeding and the products resulting may be a cause of toxemia from the stomach direct, or after entrance into the intestines. A condition of chronic toxemia may thus result. As a matter of interest we would note that rickets, which is considered one of the factors in the production of epilepsy, has often associated with it chronic dilatation of the stomach. Furthermore, Bouchard, in his well-known work on "Auto-infection," lays great stress on the chronic toxemia resulting from chronic dilatation of the stomach. I am thoroughly convinced that many cases of disturbances of the nervous system, chorea, so-called idiopathic epilepsy, and other nervous conditions commencing in early childhood, can often be justly imputed to this type of chronic toxemia. Derangements of the liver and renal functions are often associated, or result from gastro-intestinal disturbances, and take an active part in the toxemic process. Fortunately, beneficient Nature steps in in many cases, and the toxins are eliminated, with no permanent harm to the patient; while other cases may suffer from continual absorption, from prolonged constipation, for example, without any symptoms whatsoever. There is a great difference in the individual.

I should now like to call to your attention some interesting data regarding epileptiform attacks in adults. Mangelsdorf, of Bad Kissingen, has examined over four hundred cases of epilepsy and several hundred cases of migraine, and has found acute dilatation of the stomach, just preceding or during the attacks. He made accurate drawings, in many cases, of the extent of the dilatation. Another interesting type, is gastric tetany, in which gastric dilatation is a factor. Smith[1] reports a case in which a patient with dyspepsia and gastro-intestinal flatus failed rapidly in strength, and became troubled with insomnia. Tetanic attacks occasionally occurred, in which the fingers were forced into the palms. There was trismus, and the wrists were extended and rotated outward. The patient suffered mentally, and sleep was disturbed by spectral delusions. The stomach was found to be dilated, and in a condition of ptosis, and the patient became eventually extremely asthenic. These recurring attacks were entirely relieved by lavage and non-nitrogenous diet, but when these measures were neglected, symptoms at once showed themselves. Dujardin-Beaumetz[2] reports a case of gastric dilatation with very similar symptoms; and Strong[3] describes seven cases, characterized by spontaneous intermittent muscular contractions, and remarks their similarity to epilepsy. Simpson[4] and Kussmaul[5] find tetany a fairly common accompaniment of dilatation of the stomach. Moynihan[6] believes it to be not very rare, and what is of extreme interest, reports five cases in which gastro-enterostomy was performed, with a resulting cure in each case. This is most significant, as thorough drainage of the dilated stomach, the source of auto-infection, was removed and the patients were cured. The brilliant surgical work of Mayo among the nervous and insane is doubtless familiar to you.

I believe that, in certain cases of marked dilatation, or ptosis of the stomach with resulting auto-infection, the field of surgery will in the future play an important part for the relief of nervous and mental diseases. Bouveret,[7] Ewald,[8] Fleiner,[9] Einhorn,[10] and many others have reported cases of gastric tetany. Amato[11] reports a case of gastric dilatation with tetany, resulting in death. He has introduced fermenting materials into the stomachs of animals, and produced dyspnea, myosis, muscular contractions and trismus. The liver and pancreas (post mortem) showed lesions such as are usually found in poisonings and intoxications.

An interesting case of catalepsy, associated with tetanic spasms, has been reported to me by Dr. John C. Minor, of New York. The patient suffered from chronic dilatation of the stomach with ptosis of the organ. Following an attack of constipation, or marked indiscretions of diet, she would suddenly become absolutely stiff, with flexion of the limbs, the eyes tightly closed, and

would remain unconscious for a number of hours. From this condition, as she emerged into consciousness, the feet would extend, the knees increase in flexion, and there would be spasmodic twitchings of all the limbs. Between attacks, the bowels would remain extremely loose, there being many watery movements during the day. As the attack was wearing off, watery movements would occur—as many as twenty in number. While the patient's bowels remained loose, no attacks would occur. A contributing factor to the gastro-intestinal disturbance was believed to be morphine, of which the patient at times took considerable quantities.

Epilepsy, without question, may be in some cases directly attributed to auto-intoxication from the digestive tract. In the *Medical Record*, January 28, 1905, appears an interesting article by Dr. Wm. P. Spratling, Medical Superintendent of the Craig Colony for Epileptics, entitled "Gluttony, or Food Poisoning, as a Cause of Symptomatic Epileptic Convulsions." I quote as follows: "The first few cases of symptomatic epileptic convulsions that I saw in middle-aged men, in which convulsive attacks invariably followed gross overindulgence in eating and drinking, did not impress me as constituting a class of sufficient importance to warrant their being placed in a group alone. But having seen 18 or 20 such cases during the past two years, I have come to believe that they represent a distinct phase of the subject that is well worth calling special attention to, particularly since they are usually so amenable to treatment; substantially all of them making satisfactory recoveries when treatment is promptly instituted and observed as long as the nature of the case requires.

"The cases of this kind that do not turn out well under treatment are those in which the patient is unwilling to deny himself the pleasures of the palate, except spasmodically and immediately after he has had a convulsion. But unfortunately the lesson learned at such times, is soon forgotten, and all such individuals stand in danger of ultimately becoming confirmed epileptics of the so-called 'habit' type, and to suffer all the mental and physical accompaniments of that affliction.

"Usually those who suffer in this way are between thirty-five and forty-five years of age. Most of them are men of robust, frequently plethoric physique; all are hearty eaters; all lead more or less inactive, indoor lives, and some are heavy drinkers. When the latter factor complicates the case, the prognosis is less hopeful than when there is excessive food consumption only; not because the type of convulsions induced by alcoholic indulgence yields less easily to treatment, but because the drink habit is not so readily broken.

"While it is true, as a general rule, that heredity plays but little part in the causation of epilepsy, when it originates anew after the twentieth year, I have found that it is quite frequently a factor of some degree in the cases in question. It seems that there need not be insanity, or alcoholism, or epilepsy, or some other nervous affection in the ancestors of such cases as these, but a stomach disorder of pronounced type, like an aggravated dyspepsia, may make its influence felt in some obscure way in the offspring.

"A very intelligent professional man, forty years of age, came under my care eight years ago. He was subject to symptomatic grand mal attacks that invariably appeared the day following gross dietetic indiscretion, such indiscretions usually occurring between midnight and 2 A.M. He had a weak stomach and could digest certain foods only. On investigation I found that his father suffered the better part of his life in the same way. The father respected his nutritional peculiarity, but the son did not: so the father escaped anything more serious than a severe, periodic dyspepsia: while the son was threatened with becoming a confirmed epileptic. After having an attack while speaking in a public hall once, he realized his danger, changed his manner of living, and had been free from attacks for five years when I saw him last on November 24, 1904.

"The primary cause of convulsive attacks in cases of overeating and overdrinking in certain individuals seems to lie, first, in a weak stomach, and, second, in some obscure disorder of metabolism. Not only is the amount of food habitually taken by such persons beyond all reasonable requirements, but it is usually of an improper kind, and is taken to gratify what seems to be an abnormal appetite.

"The type of convulsion usually induced is of the *grand mal* variety, though it is not definitely fixed. So long as the attacks remain *grand mal* only, the case is less likely to pass into 'habit' epilepsy than when the type changes. The last case of the kind I saw was that of a newspaper man, thirty-eight years of age, who suffered *grand mal* attacks for some years, but whose dietetic habits were so atrocious that the seizures at the end of that time changed to infrequent *grand* and very frequent *petit mal*, with the result that some mental enfeeblement is becoming apparent, his memory in particular. This annoys him painfully, for in his work a good memory is a necessity. Along with the change in the type of his convulsions have come periods of marked automatism.

"The day before I saw him he had a breakfast of cereals, eggs, fried potatoes, pancakes and coffee; a hearty dinner at noon of a rich soup, chicken pie, several vegetables and pudding, with wine sauce for desert; for supper he had a heavy meat pie, of which he ate heartily, three large baked potatoes, three pieces of apple pie, and three cups of tea; and yet he wondered why he suffered so much from headaches, from his stomach, from eructations of gas and flatulence, and attacks of momentary unconsciousness that

were increasing in frequency, and that, worst of all, were fast undermining his mental faculties. He had written me two letters within a week, one on the day before I saw him, and yet he could not recall my name when I met him.

"While the indications for treatment in such cases are plain enough, they are not so easily carried out. The cause of the convulsions must be sought in toxic states due to faulty metabolism. We must first eliminate waste and toxic products, and then plan a course of treatment which will prevent a recurrence of such products."

In a number of cases of epilepsy, during the past few years, Dr. Wm. H. Thomson has secured brilliant results with the cure of patients, from treatment of the gastro-intestinal tract. In a few instances, gastric analysis showed hyperchlorhydria, while in a number of cases there was hypochlorhydria, with or without gastric dilatation. The treatment consisted in avoidance of red meats, intestinal disinfectants, regulation of the bowels, diet and medication suitable to the individual condition of the stomach, and, temporarily, sodium bromide, combined with antipyrin, to lessen reflex irritability and break the convulsive habit. I have treated recently several interesting cases of epilepsy, which were unquestionably due to auto-infection from the digestive tract. Time, however, will only allow me briefly to refer to one case.

A young man, aged twenty-five years, with a negative family history, came to me for treatment, having had epileptic attacks for about six months. About a year previous to this, he had been in the Philippines, where he had a severe attack of dysentery. Since that time he has been troubled with occasional mucous discharge from the bowels. For some monhts past, however, he had been constipated, belches gas from the stomach, and has water brash and a sour taste in his mouth; the tongue is coated. The gastric symptoms are more marked before his attacks. He has averaged one attack a month for four months, and during the last two months has had seven attacks. The early attacks were between 7 and 10 P.M., but more recently they have been from 4 to 7 A.M. The attacks clearly followed extreme indiscretions in diet, and the mother of the patient (who is a trained nurse), sent him to me for treatment, believing that gastro-intestinal disturbances were the factors in the case. In the early morning attacks, he would be awakened by abdominal discomfort, then the hands would begin to twitch, the wrists and arms would flex, then these would be raised automatically to the level of the head, and he would then become unconscious. The tongue was bitten during a number of the attacks. Examination of the stomach contents showed: Total acidity 120 + free hydrochloric acid, 90 +, a condition of hyperchlorhydria. There was intestinal tympanites, and some odor to the stool. Constipation was marked. The patient was shut off from red meats, smoking and drinking, and placed on a simple diet, especially a light supper. The bowels were freely opened with calomel, and thereafter kept carefully regulated. He was given benzoate soda gr. x t.i.d. for the intestinal putrefaction; and soda bicarb. gr. x to xx t.i.d. an hour after meals for hyperacidity. Soda bromide gr. x four times a day, one of the doses at bedtime, was given to break the convulsive habit. This treatment was continued, but the bromide was gradually diminished, and then finally stopped entirely. For four months he had no attacks. He then ate a large amount of candy during the afternoon and evening, and promptly had an attack early the next morning. Calomel was given, and bromides were begun again, and in a few days dropped. During the next three months, he had three attacks, all following indiscretions in diet, and since then has been perfectly well—a period of ten months so far, by merely taking gastro-intestinal treatment and exercising care in diet. This case would seem to be of interest.

I have noted several other cases, where there was hyperchlorhydria with atony of the stomach, and a number with hypochlorhydria and dilatation.

The question of the etiology of epilepsy is of so great interest, that Dr. Wm. H. Thomson has instituted a general research on the subject at the Manhattan State Hospital, West, Ward's Island, in which in each epileptic patient the organs of the body are examined by the various specialists who visit this institution and abnormalities, if present, are corrected. By this means, we hope in time to secure some very valuable data. In Book I (which I pass around for your observation), you will see our gastro-intestinal history sheets for these cases. These are very complete. Appropriate medication is given, such as may be indicated in each case, antacid or hydrochloric acid mixtures. The bowels are carefully regulated, and lavage is employed, if required. Intestinal antiseptics, such as benzoate of soda, resorcin, soda salicylate, and sulphocarbolate of soda are given. The red meats are omitted. Bromide of soda, with antipyrin, is administered, to lessen reflex irritability and break the convulsive habit. Matzoon is made in the hospital especially for these cases. These patients live as much as possible in the open air, a method which Dr. Dent carries out in fact with all his cases in the hospital.

You will kindly observe the photograph I now pass around for inspection. It demonstrates the position of the stomach in epileptics recently examined. The anatomical regions were marked out in blue pencil on the abdomen of each case and during transillumination of the stomach the outlines were drawn in colored pencil. These markings were redrawn directly from each subject, on paper stamped with a special instrument, giving the anatomical regions. The results secured were as follows: Females, total number,

34 cases; gastroptosis, 16; dilated stomachs, 16; stomach in normal position, 2. Males, total number, 6 cases; dilatation of the stomach, 5; stomach in normal position, 1.

The motor functions of the stomach were examined and the analysis of the gastric contents were made with all these patients. These factors were considered in making the diagnosis. There was abnormal secretion in the stomachs occupying the normal position. These data are certainly suggestive. There has been improvement in some of these cases, but it is too soon to report definite results. Of course, many of these asylum patients are of the worst type, and in some, degenerative changes have occurred in the brain. Nevertheless, even under such conditions, auto-intoxication can be minimized and susceptibility to convulsions can be diminished by proper treatment.

These stomachs were transilluminated with the gastrodiaphane and fluorescein solution. On Card "A" you will see a picture of the new "circumscribing gastrodiaphane," which was especially devised for work in this hospital. On Card "B" is a description of the various fluorescent media employed, also a new method, and devised by the author at this institution.

There seems to be an unfortunate disposition on the part of neurologists to consider various gastro-intestinal disorders, dilatation of the stomach, inordinate appetite, stuffing, bolting the food, etc., to be the result of nervous or mental disease. They forget that bulimia (inordinate hunger soon after a meal), acoria (absence of satiety), polyphagia, etc., are often found in stomach diseases. I think that we have, even at this point, fully demonstrated that, in some cases at least, the gastro-intestinal disturbances may be primary.

You are all familiar with the symptoms resulting from chronic constipation such as headache, drowsiness, inability to concentrate the attention, general malaise, etc. Duprey, in the *Lancet*, 1902, I, 1832, cites the following interesting cases illustrating extreme types of toxemia as a result of this condition:

Case I.—A woman of thirty-five years suddenly became unconscious with rapid and shallow breathing, pulse 96, temperature normal. Examination of the urine showed no signs of nephritis, attention to the bowels was followed by recovery.

Case II.—A young man suddenly became unconscious, but could be roused from his stupor only to talk incoherently and relapse into the unconscious state. Heart, lungs and kidneys were normal. Recovery after free evacuation of the bowels.

Case III.—A child, three years old, with a history of constipation, suddenly expired while playing. Autopsy showed no condition which could account for death except that of fecal distention of the descending colon. Some on the other hand have no symptoms resulting.

Many nervous conditions, neurasthenia, mental depression and melancholia, can be imputed to auto-intoxication. Brokers and professional men, with irregular habits of life, constitute almost a class in themselves. Bolting the food, or excessive eating or drinking, rich food, etc., are factors in the production of hyperacidity, motor insufficiency, dilatation of the stomach, constipation, and auto-intoxication, with resulting disturbances of the nervous system, and the treatment of the gastro-intestinal conditions will rapidly restore the patient's nervous tone in many cases. Mental depression often accompanies, or is a symptom of, toxemia, and this condition may even progress to depressive insanity. Among other symptoms of auto-infection from the digestive tract, are apathy, insomnia, somnolence, and inability to concentrate the attention. Resulting from the auto-intoxication of jaundice, we may have all grades, from mental depression to melancholia and insanity. It may cause coma, muscular twitchings, convulsions and death. Stern [12] reports a case of narcolepsy in which, having excluded syphilitic endarteritis, he imputes the condition to auto-infection, resulting from dilatation of the stomach and hyperchlorhydria.

Hamilton[13] offers the following conclusions, having made a special study of the digestion and urine in the insane: "Varying and fugaceous illusions and hallucinations, pallor, increasing exhaustion, verbigeration, confusion and unsystematized delirium, are due to auto-intoxication.

Auto-intoxication is common in alcoholism and the drug habits. Epileptiform attacks are directly connected with putrefactive conditions in the intestines." An interesting condition, resulting from auto-intoxication, is Graves' disease. I have already referred to the work of Dr. Wm. H. Thomson, "Graves' Disease, With and Without Exophthalmic Goiter." He holds that the toxin is formed first in the alimentary canal, and then remains in the circulatoin on account of disturbance of the thyroid. He describes twenty-eight characteristic symptoms. Many cases of true Graves' disease exist without thyroid enlargement. He believes that implication of the thyroid is secondary, just as is the enlarged spleen in some cases of chronic ague. He has secured some brilliant results by treatment of the gastro-intestinal tract. I have already referred to the suggestive fact that ethylenediamin, a ptomain, found in some cases of dilated stomach, will produce exophthalmos on injection into animals.

Another interesting class of nervous cases, resulting from auto-infection, are those in which ptosis of the gastro-intestinal tract is the primary factor. There are various types of this condition, from those of a mild degree to the extreme condition described by Glénard. With the descent of the stomach and intestines, there is a nephroptosis of the right kidney, sometimes of both, and there may be, in addition, ptosis of the liver and spleen. A review of the etiology is necessary.

In the first place, the vertical stomach is the fetal position of the organ. Examination of infants and of young children will demonstrate, occasionally, a congenital gastroptosis to exist, and in some cases gastroptosis with its associated enteroptosis has been accidentally discovered and has undoubtedly existed for many years, with no symptoms resulting, the patient being in perfect health; but some contributory factor, local irritation, anemia or intercurrent disease may destroy the equilibrium, and gastro-intestinal disturbances, constipation, etc., occur, causing auto-infection, and as a result, neurasthenia. The maintenance of a certain degree of intra-abdominal tension is a factor in preserving the position of the viscera; thus a loss of tone in the abdominal muscles, or absorption of omental, or intra-abdominal fat, may be a factor in the production of ptosis. So also may an abnormal elongation of the mesentery, or an atonic condition of the suspensory ligaments of the stomach and colon. The loss of tone in the stomach and intestines—atony—is another factor in the production of ptosis. I have always believed dilatation of the stomach and gastroptosis to be progressive degrees of atony; that in ptosis of the stomach, the organ was dilated and that gastroptosis might be primary, with enteroptosis a secondary condition; this agrees with Riegel's views. I cited a case in which I was convinced dilatation first occurred, then gastroptosis, and later enteroptosis. Glénard, on the other hand, claims that enteroptosis is invariably the primary condition. The conditions are undoubtedly associated, but I believe that either may precede the other.

It is not the degree of the descent of the lower border of the stomach which constitutes a ptosis. With gastroptosis, the lesser curvature of the stomach descends with the greater and loses its relations to the diaphragm; while in dilatation, the muscular fibers elongate in the vertical direction—the greater curvature alone sinks, and the lesser curvature maintains its relations and does not sink.

The gastric condition may be one of hyperchlorhydria, or of hypochlorhydria, or even achylia gastrica. If the splashing sound be confined to below the umbilicus, and to the left of the median line, and one can determine a floating kidney, we can be sure that gastroptosis is present. In the milder degrees of ptosis, it is not so easy to differentiate between ptosis and simple dilatation; and in this event it may be necessary to employ inflation with air, or transillumination of the stomach.

Undoubtedly many cases of neurasthenia, treated with brilliant results by the Weir-Mitchell rest cure, are the result of gastroptosis. Rest and the putting on of fat to increase intra-abdominal tension are of value in ptosis. Rose's adhesive plaster belt is of service in the treatment of these cases, as it supports the organs and increases intra-abdominal tension. I show you a manikin with the belt applied, and also the plaster-strapping ready cut for use. At the Ward's Island Clinics, we were the first to employ the moleskin plaster for the belt. The zinc oxide on moleskin, 7 inches wide, and manufactured by Johnson & Johnson, is the best for this purpose. In a new work, entitled "Atonia Gastrica," by Dr. Rose and myself and published by Funk & Wagnalls, you will find a full description of the method.

I consider mucous colic to be one of the manifestations of Glénard's disease, and the neurasthenic condition present in the disease, to be the result of auto-infection. These views are given in a paper, entitled "Mucous Colic," *American Medicine*, March 4, 1905.

In conclusion, let me say that many cases of neurasthenia occurring in women are due to auto-infection, associated with ptosis of the viscera; and I have seen excellent results secured from the treatment of the latter condition. In extreme cases, surgical measures, such as revision of the abdominal mucles, with shortening of the suspensory ligaments of the stomach, or gastroplication, as suggested by Dr. Robert T. Morris, would be of value. I have already called to your attention that auto-infection from the gastro-intestinal tract may, in many cases, even when there are organic changes in the brain, create a vicious circle and aggravate the symptoms.

Such derangements of the digestive functions occur in syphilis, from alcohol and from drug habits, as well as in other conditions. For example, I present the following data to you of thirteen cases of dementia paralytica, investigated by Dr. Dent. You will note a diminution in the frequency of the convulsions, and a lowering of the temperature in these cases, resulting from regulation of the bowels and treatment of the gastro-intestinal tract, appropriate to each case.

Dementia Paralytica (Analysis of 13 cases).—Tabetic type, 4 cases; cerebral type, 1 case; hyperacidity, 1 case, with dilatation of stomach slight and commencing; achylia gastrica (functional), 1 case; hypoacidity, 11 cases, with two severe types of chronic gastritis; dilatation of stomach, 11 cases; gastroptosis, 2 cases; chronic constipation, marked and of varying degrees of severity, 13 cases; odor to breath, 13 cases; evidences of putrefactive changes in the gastro-intestinal tract, 13 cases; temperature, no result from treatment, 2 cases (in one of these the temperature was due to foul bed-sores); temperature lowered in 11 cases, and in some very decidedly as a result of treatment, and remained lowered (rectal irrigation was an aid in lowering the temperature in 3 cases); convulsions, none occurred at any time in 7 patients; diminished in frequency in 5 patients by treatment; attack of syncope (equivalent to convulsive seizures), absolutely stopped by treatment, 1 case; died, 1 case.

In Book II, you will find abstracts of each case, with a photograph of the stomach. The data are tabulated on the cover. As intestinal irrigation proved of value in 3 cases. I show you the Kemp irrigating tube (recurrent), which is of service

for the purpose. The outflow is curved and larger than the central flow. It is employed in all of our large hospitals. The continuous bath, as advocated by Dr. Dent, is of great value as a sedative and to eliminate toxins.

Surgery.—I have already called to your attention the brilliant results secured by Moynihan in gastric tetany, through drainage of the dilated stomach by gastro-enterostomy, and hence the prevention of auto-infection, and the cure of his patients. The work of Mayo has also been alluded to. I have spoken of the value of surgical procedure in mucous colic, with its associated neurasthenia. In some of our patients suffering from nervous or mental diseases, with marked dilatation of the stomach and auto-infection, I believe that we should resort to gastro-enterostomy, or gastroplication, after failure of the simpler measures. It will relieve the toxemia and break the vicious circle, thereby ameliorating symptoms, even in the worst type of cases. A case of gastroptosis and dilatation, with nephroptosis of the right kidney, the patient being melancholic, was recently operated on at the Manhattan State Hospital, West, Ward's Island, by Dr. Bickham. There was albuminuria, and congestion of the kidney, and the patient's attention was directed to that organ. I advocated that a nephropexy should be first done, to relieve the existing congestions and for the mental effect.

If mechanical support by Rose's belt and medical treatment of the auto-infection do not relieve the nervous symptoms, gastroplication and shortening of the suspensory ligaments of the stomach will be performed. I believe that in some cases in surgery, we have a brilliant future for the relief of nervous and mental diseases, especially in the types mentioned. The work of Dr. Leroy Brown in his department, gynecology, speaks for itself. Finally, since auto-infection from the gastro-intestinal tract would seem to have such an important relation to these conditions, a new method has been instituted at the Manhattan State Hospital, West, Ward's Island, which I will now describe.

In Book I, on the last page you will observe a gastro-intestinal chart for new cases. I insert a copy of it in next column. On this is placed the mental diagnosis, and also the gastro-intestinal condition found by examination. At the bottom of each chart, a memorandum is made of the treatment and the results. This is bound in with the history of the patient. A duplicate is filed separately, so that at any time, under the various types of nervous or mental disease, we can find the conditions existing in the gastro-intestinal tract, and the treatment employed with the results secured, without reading through the histories of the cases. A special physician is appointed to examine each case on admission, and appropriate treatment is at once instituted. We have certain standard mixtures at hand, an acid hydrochloric mixture with pepsin, and antacid mixture (magnesia usta 3 parts, soda bicarb. 1 part), and an antifermentative mixture (resorcin gr. v, benzoate soda grs. x, sulphocarbonate of soda grs. iii.) Lavage is performed when required. Special cases, such as ulcer of the stomach, etc., are referred to the visiting gastrologist. The bowels are regulated, and hydrotherapy (for which there are all the modern facilities) is applied when indicated. In Book I, I have appended a brief history of a case kept for five weeks in

MANHATTAN STATE HOSPITAL, WEST, WARD'S ISLAND.

Name Age, Ward,
Date,

Diagnosis
Acute Melancholia.

GASTRO-INTESTINAL CHART.

Diagnosis
Stomach

Percussion — Normal Position — Atony
Splashing Sound
Palpation — Dilatation
Nephroptosis — Gastroptosis
Vomiting
Ewald's Test Breakfast — Residuum Aspirated c.c.
Reaction — Total Acidity — Free HCl.
Uffelman's Test — Pepsin — Rennet — Starch Digestion
Mucus — Blood — Hyperacid — Normal
Anacid — Achylia — Gastritis — Fermentation
Liver
Intestines — *Spleen*
Percussion
Palpation
Movements
Normal — Irregular — Constipation — Diarrhea
Mucus — Blood — Odor
Enteroptosis
Treatment — *Results*

a continuous bath. By such means, the influence of auto-infection from the gastro-intestinal tract on each patient is carefully observed. Complete urinalysis, estimation of urea—the presence of indican, etc., is carried out in every case. To my knowledge, this is the first institution in this country which has placed the study of the relations of auto-infection to nervous and mental diseases on a practical clinical basis; and it is from such investigations that we secure results from the science of medicine, and the greatest benefit to suffering humanity.

107 East Fifty-seventh Street, New York City.

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Dental School's New Site Bought.—The purchase of a new site for the Harvard Dental School, to be located near the medical school in the Fenway, was the pleasant announcement which Dean Smith made to the alumni of the school at a recent reunion and dinner. Dean Smith also made an earnest appeal for a fund of $500,000, for the erection of a suitable building, and an appropriate endowment, on the ground that the school was really a charitable institution and carrying on a strictly charitable work throughout Boston and vicinity.

SYPHILIS OF THE LIVER, SCLEROGUMMATOUS TYPE.[1]

BY JOHN FUNKE, M.D.,
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ALTHOUGH Fischer[1] maintained that syphilis produced five different lesions in the liver, yet he recognized that the forms are not easily separated from one another. The classification given by Virchow[2] is the one usually accepted. He maintained that syphilis may affect the liver as a diffuse process or as a gumma, or these two may be combined, giving us a sclerogummatous form. Frerich[3] recognized a waxy or amyloid type but this has been excluded by Virchow. It is the sclerogummatous form that will be dealt with here. This paper is based upon a liver obtained at autopsy at the Philadelphia Hospital. The pathological diagnosis was as follows: Chronic ulcerative tuberculosis of the lungs; hyperplastic pleurisy; fibroid myocarditis; hyperplastic splenic capsulitis; chronic interstitial nephritits; miliary tuberculosis of the liver.

Since no lesion in other organs bears upon the matter under consideration the post-mortem findings of the liver and the gall-bladder only will be given. The liver lacked 1 cm. of reaching the costal margins in the midclavicular line, it was slate-colored but had a distinct greenish tinge; the organ was firm and scattered over its external surface were many round or oval grayish areas, varying from 2 to 4 mm. in diameter. They were apparently beneath the capsule which seemed involved, as was clearly shown by section; when incised they were found to extend into the parenchyma of the organ, so far as could be determined, to a distance of about 2 to 4 mm. Over the external surface 5 cm. to the right of the suspensory ligament were two depressed grayish-white lines running nearly parallel with that structure; they were both 4 mm. in width; one measured 2.5 cm. in length and the other 1 cm. The organ was found to resist the knife and the cut surface was studded with nodules similar to those described as being present under the capsule. They resembled miliary tubercules in every respect, although it was quite impossible to remove what appeared to be caseous centers. The peripheries of many of the lobules were easily outlined and were slightly depressed; the depressed parts were grayish-white in color and resembled fibrous tissue. The greenish tinge was more pronounced on the cut surface than upon the external portion of the organ, giving the parenchyma a granular appearance. Near the transverse fissure of the organ was a fibrous mass having a dimension of 1 by 2 cm., which incorporated the bile passages but did not impinge upon the vessels. A probe introduced at the ampulla of Vater would extend as far as the juncture of the hepatic and cystic ducts, where it met with an obstruction and upon dissection of the common duct the lumen was found occluded by the fibrous mass already mentioned. Upon further dissection the cystic duct also was occluded; the right hepatic could not be traced, but the left branch passed near the margin of the fibrous mass. The fibrous nodule extended into the liver for a distance of 1 cm. At no point in the growth could either duct or liver substance be identified, apparently it was fibrous throughout and distinctly circumscribed. The greatest diameter of the gall-bladder was 7.5 cm.; the organ reached 10 cm. below the margin of the liver; was elastic and apparently filled with fluid but the distention was so marked that fluctuation could not be elicited. At the junction of the gall-bladder with the liver was a mass of cicatricial tissue which formed firm adhesions between the two organs. The scar was pinkish red in color and very rough. The gall-bladder was found to contain 225 c.c. of a slightly clouded grayish-tinged fluid; the mucous membrane was covered by a grayish-white semisolid mucigenous substance; when the latter was removed the exposed mucosa was pale and smooth. The walls of the gall-bladder were extremely thin, scarcely 2 mm. in thickness. The peritoneal cavity contained 150 c.c. of a straw-colored fluid.

Cumston[4] maintains that the deep indentations along the anterior border of the organ and the white lines running over the external surface of the liver are characteristic of syphilis, and he holds Virchow responsible for the statement that they occur most frequently in the neighborhood of the suspensory ligament and that the convex surface is a frequent site. After fatty metamorphosis, he says, the gummata are absorbed and replaced by fibrous tissue. In discussing the morbid anatomy of syphilitic cirrhosis of the liver Hale-White[5] says the puckering and the scarring are unlike that of atrophic cirrhosis. In syphilitic disease the scars are big and broad, sometimes one-third of an inch in width; they cut the liver into large areas, as big as the back of one's hand; never do we see the little hobnail projections which are so characteristic of ordinary cirrhosis of the liver. Lazarus-Barlow[6] reports a liver with syphilitic stricture of the bile ducts. The organ was dark green from retained bile and it was almost entirely composed of an enormously hypertrophied left lobe. The right lobe was small and its surface was covered with numerous scars and deep indentations, the seat of old gummata. One mass of fibrous tissue involved the bile ducts; the left hepatic duct was separated from the common by a thin fibrous septum. MacKenzie[7] reported a liver which was uniformly enlarged and had two scars on its surface. The gall-bladder was distended with a colorless fluid and its duct was so embedded in fibrous tissue that the lumen was occluded. He believes that the scars on the surface of the liver are retrocedent gummata and calls attention to the

1 Read before the Philadelphia Pathological Society, Feb. 9, 1905. From the laboratories of the Jefferson Medical College and the Philadelphia General Hospital.

fact that the cut surface of the organ strongly suggests the presence of malignant disease.

In the case herein reported the microscope did not corroborate the diagnosis of tuberculosis of the liver based on examination of the gross specimen. Although the indentations and the scarring already referred to by Cumston, Hale-White, Lazarus-Barlow and MacKenzie, were not evident macroscopically, they are very clear microscopically. The dipping is marked even at points where the underlying parenchyma is not involved. The perihepatitis which, according to some authors, is a frequent accompaniment of this form of lesion and to which Stockton ascribes the pain and the friction, is not marked in this case. The capsule is thickened at points and this hyperplasia is greatest where the fibrous tissue extends into the parenchyma of the organ. The tissue responsible for the thickening is composed of coarse wavy fibrils which react to Mallory's reticulum stain in a manner similar to the fibrils making up the normal capsule. Between the fibrils are many lymphoid cells which are evenly dispersed and show little tendency to grouping.

As pointed out by Cumston the fibrous tissue is abundant throughout the sections, and as noted by Hawkins,[9] Quincke,[10] Cumston and MacKenzie, it not only surrounds the lobules but penetrates these structures as coarse and fine strands. The picture presented is such as might have been produced had the newly formed tissue originated at the periphery of the lobule and by continued proliferation gradually extended between the liver cells, and as it did so, impinged upon them, whereby they were destroyed; close examination of the sections stained with Mallory's reticulum stain seems to justify the view that the newly formed intralobular tissue is an increase of the already existing reticulum. At many points it is possible to see how long one side of the blood vessels nests of liver cells have been isolated by the increased reticulum and how difficult it is to outline or even trace the reticulum between the liver cells on the opposite side of the same vessel. In an area where the fibrous tissue is abundant it is evident that toward the periphery of the fibrous mass delicate strands of newly formed tissue surround retrogressing liver cells. The picture presented in many respects is similar to that described as present around some of the vessels. Near the center of the tissue such nesting of the liver cells cannot be found. Here the newly formed tissue is closely matted and between the wavy fibrils are many lymphoid cells. In many places the distribution of the fibrous tissue is similar to that seen in atrophic cirrhosis of the liver, that is, from a central focus, very often a blood vessel; it tends, in the majority of instances, to surround each lobule separately, but occasionally embraces several. A frequent picture is the occurrence of circular masses of newly formed fibrous tissue, the centers of which are occupied by blood-vessels, whose walls are thickened but not in proportion to the thickening seen around the bile ducts; the elastica does not figure in the increase.

Distributed throughout these nodular masses are many bile ducts, the walls of which are also thickened by concentric layers of newly formed tissue. The columnar epithelial cells, fairly well preserved, occur as usual, in a single layer. The circular or perhaps nodular masses of fibrous tissue are responsible for the gross picture which was interpreted as miliary tuberculosis. Although nearly all authors point out that there is an increase in the intralobular connective tissue none refer to that seen around the central vein which, while not marked, is readily demonstrable in the sections.

Adami[11] maintains that in the acquired form of syphilis there is a generalized toxic distribution in the organ with a resulting catarrhal hepatitis which may or may not lead to a general fibroid condition. Flexner[12] is of the opinion that interstitial hepatitis is due to a diffusible poison, perhaps a toxin elaborated by the syphilitic virus or organism. He regards the lesions of syphilis as comparable to those produced by the *Bacillus tuberculosis* which sometimes gives rise to a diffuse fibroid overgrowth at other times produces tubercles. A careful histologic study of the sections in this case lends support to these opinions. The distribution of the fibrosis may be explained in the following way: The toxic substance is brought to the liver by the portal vein and hepatic artery, probably most of it reaches the organ by the former route. We know that the interlobular veins break up into numerous capillaries at the periphery of the lobule which increases the vascular area and this is instrumental in slowing the blood current so that the liver cells at the periphery of the lobule are most severely affected by the syphilitic poison: these cells degenerate or undergo necrosis, the reticulum is irritated, either by the poison itself or by the products of the degenerated cells and as a reactionary process the reticulum, together with the interlobular tissue, is increased.

Scattered throughout the sections, although not numerous, are circular or oval cellular areas which at times involve an entire lobule. They are composed, for the most part, of large cells with palely staining nuclei resembling the hyaline leucocytes; although there are some polymorphonuclear leucocytes present, they are not increased over the number found in other portions of the liver. In the centers of the areas are many granular and fragmented cells and considerable granular detritus; liver cells cannot be identified; here the accumulation of hyaline cells is not so great as farther toward the periphery. Most of the accumulated cells are surrounded by newly formed fibrous tissue except in a number where the encirculating sclerosis is incomplete and the gap is filled by long spindle-cells closely resembling those commonly seen in formative tissue. These isolated patches were at first taken for abscesses but upon finding the polymorphonu-

clear cells as abundant in the liver tissue elsewhere their presence was looked as being incidental. Bacteria could not be demonstrated. Closer study suggested miliary gummata.

Marchand,[13] when speaking of the cellular infiltration of syphilitic livers in infants, tells us, that although the greater number of cells are mononuclear many are polymorphonuclear. According to this author even if the polymorphonuclear cells had not been found in the other parts of the organ their presence need not rule out miliary gumma. Hawkins maintains that miliary gummata are rare, whereas Quincke says they are less frequent than the diffuse form, but when found they are scattered throughout the liver in abundance and resemble tubercles or neoplasms. He notes that deformity of the organ is less likely to occur in the miliary than in the gummatous form. Adami found giant cells among the leucocytes in the small gummata, while Einhorn[17] noted the presence of granular detritus, fat globules, few nuclei, nuclear fragments, and occasionally connective tissue fibrils. The capsule, he says, is made up of scar tissue. Fat was not demonstrable in these sections, but this fact does not imply that it is absent, as not until the sections were examined microscopically was the true condition of the specimen recognized and since the tissue was not fixed in osmic acid the fat was dissolved during preparation.

Incidentally it may be mentioned that the sections also show a moderate amount of pigmentation near and around the central veins where more or less congestion is present.

Sections taken from the fibrous mass at the junction of the hepatic and the cystic ducts are entirely composed of dense wavy fibrils of connective tissue containing many lymphoid cells principally diffused throughout the fibrous mass; occasionally they form mantels around the blood vessels. The nodule contained no recognizable liver substance nor were there any ducts found. Although not found at the usual site for gumma, nevertheless the fibrous mass was taken to be a retrocedent and cicatrized gumma. Adami refers to gummata occurring in the region of the gall-bladder, and Marchand in his studies of syphilitic livers in infants found cellular infiltration around the vessels at their entrance to the organ. Reference has already been made to the case reported by Lazarus-Barlow who believed the occlusion of the hepatic duct was due to the organization of an old gumma. In MacKenzie's case the cystic duct was so occluded that the bile could not be made flow by pressure upon the gall-bladder. The miliary gummata in the present case are in all instances of recent origin and it is very difficult to believe that they are due to the same infection which gave rise to the gumma at the cystic and hepatic ducts. It is fairly well established that a second syphilitic infection may occur in the same individual and this may account for the presence of the recently formed gummata. This view is suggested because sometimes miliary gummata of recent origin are found in the masses of old fibrous tissue which have degenerated and become necrotic just as the liver tissue or the reticulum of the organ in this case.

The greenish tinge of the liver, skin, conjunctiva and other organs mentioned in the post-mortem protocol can be explained by the fact that the bile ducts are extensively involved by the fibrosis, and obstruction must have been present.

Fournier[14] maintained that he never failed to find ascites accompanying syphilitic disease of the liver, but Trinkler[15] says in some cases it is absent. This, to a certain degree, depends upon the involvement of the blood vessels, especially the extent or as has been maintained by some authors, associated irritation or actual inflammation of the peritoneum. The accumulated fluid found in the gall-bladder at autopsy was attributed to the tuberculous condition of the liver with secondary involvement of the walls of the gall-bladder; sections of this organ show no conspicuous change in the wall, no gummata, and therefore the hydrops felleæ seems to have resulted from irritation incident to obstruction of its duct.

The time intervening between the infection and the development of the lesion in the liver has been much discussed. Adami states that in acquired syphilis of the liver we know little about the effect upon the organ during the secondary stage, but judging from the lesions seen in infants with the acquired form of the disease there is a general intoxication which results in a catarrhal hepatitis. Hilton Fagge[16] reports a case with a history of a syphilitic rash, falling of hair, macular syphilides, jaundice, unconsciousness and finally death. Although a microscopical examination of the sections of the liver was made, he says, there were present only such changes as could be attributed to a general toxic condition of the organ. Cumston maintains that the liver is not affected until at least five years after the infection, but may become involved as late as ten or twenty years.

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Burlington Commencement.—The annual commencement exercises of the medical department of the University of Vermont were held at "The Strong," June 28. Those to receive the Faculty prizes were: A. W. Bridge, of Burlington, Vt., first prize; Leon L. Lawson, of Nicholville, N. Y., second prize. Awarded for the highest rating during the entire four years' course.

SOME REMARKS ON SUDDEN BLINDNESS FOLLOWING ORBITAL INJURIES. REPORT OF CASE.

BY H. B. DECHERD, M.A., M.D.,
OF GALVESTON, TEXAS.

From ancient times to the present there have been reported many cases of sudden blindness following injuries which involved the orbit but not the eyeball itself. These injuries may take the form of blows or falls upon the orbital margins (with or without demonstrable fracture) or upon other parts of the skull (contrecoup), penetrating wounds such as gunshot or punctured wounds with canes and umbrellas; and occasionally result from falls upon other portions of the body, as upon the feet or buttocks.

Nature of Blindness.—This may be: (1) Immediate and permanent; (2) Immediate, but may improve; (3) A subsequent feature to the injury; (4) Immediate, almost complete, and gradually progress to complete.

Where the traumatism was directed against the walls of the orbit or neighboring localities, the older observers (and some few even at the present day), attributed the visual disturbance to injury of the supraorbital, infraorbital, nasal, frontal, or other branch of the trigeminal, and not of the optic or oculomotor nerves. Thus, reflexly, through vasomotor and trophic influences, it was supposed that both vision and ocular movements could be partially or completely suspended. This theory, of course, is untenable, for as de Schweintz and others have pointed out, if the cause were vasomotor, the ganglion cells of the retina would be the first to degenerate, and there would be an ascending instead of a descending neuritis. (A similar theory as regards sympathetic ophthalmia has also been promulgated; that this disease is due to reflexes operating through the ciliary nerves.)

The real underlying factor is no doubt a fracture or fissure of the walls of the orbit, involving the optic foramen or sphenoidal fissure, inducing either direct trauma of the optic nerve, or else hemorrhage into its sheath, with subsequent pressure from blood or inflammatory exudate. In the last, *i.e.*, exudate, the onset and progress of blindness would likely be gradual. Laceration of cranial vessels, vessels of the sheath, or of the central retinal vessels might be responsible for the hemorrhage. Should the fracture involve the middle fossa, a direct injury of the chiasm or optic tract, or an extravasation nearby, could easily produce visual impairment of both eyes. As in the case below reported, a localized meningitis might effect a similar result. Furthermore, it is easy to see how a penetrating foreign body might be directed to the apex along the orbital walls, although these are fairly thin. In a living subject, they would doubtless offer even more resistance than in the dried skull. According to Morton, the inner wall is least protected, and unless the force is perpendicular to its plane, it is directed to the apex. Lacrimal sac and ethmoidal involvements are apt to supervene upon trauma of the inner wall. Penetrating fractures of the roof are quite common, and often fatal.

For permission to report the following case, I am indebted to Dr. P. A. Callan, in whose service it occurred at the New York Eye and Ear Infirmary.

Case.—A. M., male, white, aged nineteen years, was brought by his mother to Infirmary at 9.30 A.M., March 10, 1905. Patient seemed in a somewhat dazed condition; and hence could not give an intelligent history. His mother stated that on the evening of March 9, at 8 o'clock he had been punched in l. eye with the ferrule of an umbrella. (Three days later, he stated that he was standing on the step of a street car, and that someone in the crowd on street corner punched him in l. eye with an umbrella, latter being directed somewhat upward.) Patient appeared very much depressed. Began vomiting while being examined. Epistaxis from left nostril.

Present Condition.—Left eyeball very prominent. Lids edematous, discolored, ecchymotic. Conjunctiva of lower lid markedly edematous. There is a punctured (lacerated) wound in lower lid, 1 cm. in horizontal length, 1½ cm. from inner canthus, and 1 cm. from lid margin. Pupil somewhat irregular and dilated (7 mm.) Only consensual reaction present. Fundus: Disk margins somewhat blurred. Veins larger than normal and tortuous. Vision-figures at about 20 cm. (?) Ptosis and limited movements. Physical examination negative.

March 10.—Since admission has been in a state of semi-stupor. Gives incoherent answers to questions. Retains no food. Does not complain of pain. Temperature 6 P.M., 101° F., pulse, 76; respiration, 24.

March 11.—Slept only at intervals during night. Seemed dazed, and wanted to get up and walk floor. Restless, tossing from side to side. Temperature, 8 A.M., 100° F. Condition of mind improved; more coherent. Retains some nourishment. Neck very stiff.

March 12.—General condition better. Less stiffness of neck. Excruciating pains in back on attempting to sit up in bed. Chemosis and discoloration of lids and conjunctiva more marked. Retains nourishment.

March 13.—Temperature, 4 A.M., 100.4° F.; pulse, 58; respiration, 18.

March 14.—Complains of moderate frontal headache. Had restless night, sleeping very little. Pulse slow since admission; still slow in proportion to temperature. Wound in lower lid almost healed.

March 15.—Temperature, 4 P.M., 102.6° F.; pulse, 60; respiration, 24. Condition about same; mentally slightly improved.

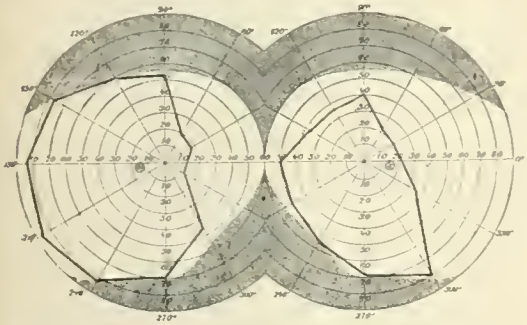
March 16.—Very restless night; tossing about and sitting up in bed. Temperature, 8 A.M., 99.8° F. Pains all over body. Neck still somewhat stiff.

March 17.—Temperature, 8 A.M., 99° F.; pulse, 60; respiration, 20. Feels more comfortable. Tension slightly minus. Only consensual pupillary reaction.

March 18.—General condition greatly improved. Temperature normal. Swelling and edema much diminished.

March 20.—Slight pupillary reaction to direct light stimulus. Fundus examination of O. S. shows lessoned inflammatory reaction, and on exaggerated scleral ring. O. D. shows beginning descending optic neuritis.

Fig. 1.



March 21.—Neuritis O. D. more marked even than in O. S. at earlier date.

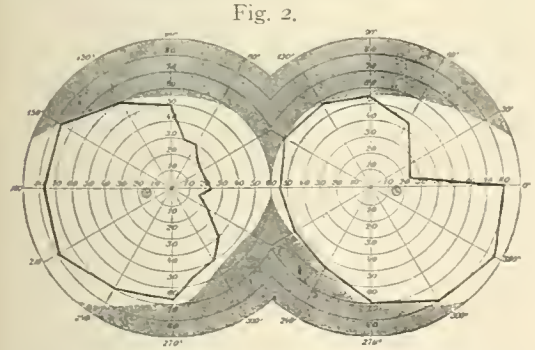
March 23.—Veins enlarged and tortuous in O. D.; swelling of nerve fibers.

March 28.—Disk O. D. clearing up. Disk O. S., beginning pallor; margins of disk easily seen; hardly any signs of neuritis. V. O. S. = 6/60; V. O. D. = 6/5.

March 30.—Margins of disk of O. D. no longer blurred. Left nerve head getting paler. Vision O. N. same.

April 3.—Patient much improved; feels quite well. V. O. S. has temporarily improved to 6/30. Fundus O. D. nearly normal. Discharged. Told to return to Outclinic once weekly for observation of O. S.

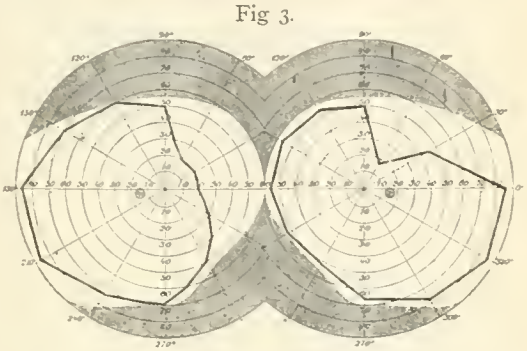
Fig. 2.



Diagnosis.—Separation of fronto-ethmoidal suture into optic foramen (left side), causing pressure on optic nerve, with hemorrhage and localized meningitis inducing neuritis in both eyes.

That so few of these cases are correctly diagnosed is surprising, after a perusal of Callan's and Von Holder's statistics. The former cites 25 occurring in his own practice, with autopsies on three. He thus explained the nature of the traumatism: "The frontal bone unites with the nasal, maxilla, lacrimal and ethmoid bones by a continuous line of sutures, until the lesser wing of the sphenoid is reached; and at this point the suture line bifurcates, forming an obtuse angle. Quite near the apex of the angle is the foramen opticum. The jar made by the blow would find

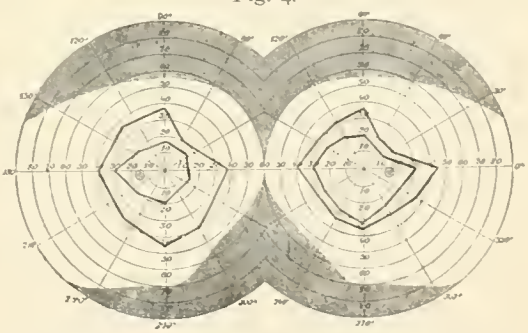
Fig 3.



its weak point along this line of sutures; and the first resistance would be at the bifurcation adjacent to the foramen opticum. The movement or jar could not follow both lines with equal force at and beyond the bifurcation; consequently the unequal strain would result in fracture of the bone into the foramen opticum, causing compression of the optic nerve and sudden loss of vision in the eye."

Berlin, quoting Von Holder's 124 cases of skull fracture, found 86 of the base; 79 of these were through the orbital vault, 63 involving the optic foramen. The fracture was always through the upper wall, and sometimes also through the inner wall of the foramen. In 42 there was

Fig. 4.



hemorrhage into the nerve sheath, but never without fracture of the bony canal. Hence, it can be inferred that in many skull-base fractures, involvement of the orbit escapes notice entirely, either because the patient dies and the autopsy (if any) is not thorough; or also because the other symptoms mask those of the eye. Later on, when atrophy is discovered, it is usually ascribed to some other cause than fracture (reflex; direct injury to nerve, etc.). In addition to the cases already noted, Hewitt (System of Surgery) notes 68 fractures of the base, 23 extending into the orbit. Indeed, fracture of the

walls of the orbit, usually involving the optic foramen, have, on close clinical study and post-mortem investigation, so often been found to be the basis of sudden blindness following orbital injuries that it may practically be regarded as a *sine qua non*.

For fields for March 21, 27 and 31 (Nos. 1, 2 and 3) are shown in accompanying diagrams. On April 12, an attempt was made to take the color fields (No. 4). White (the outer field) is fairly accurate; but the fields for blue, red and green, could not be distinguished with certainty, all seeming to have about equal dimensions (inner field). The constrictions of the fields correspond of course to the situation of the nerve fibers most affected.

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THE SEXUAL NECESSITY.[1]

BY E. L. KEYES, M.D., LL.D.,
OF NEW YORK.

I HAVE been allotted ten minutes and asked to present briefly a medical point of view, a suggestion as to the lines along which this Society shall approach the community in an educational way—for this is an educational symposium. And it seems to me that I may do this best by attacking the matter at its kernel.

The gist of the whole subject, as I believe, lies in the sexual problem, a problem we usually discuss behind closed doors; but the doors must be opened now if the Society expects to accomplish anything educational. The dissemination of knowledge along pathological lines will doubtless be helpful in deterring the stupid, the ignorant but innocent and right-minded from spreading disease through the community—that is the correction of such obvious and widespread errors as a belief that the danger of communicating syphilis ceases upon the cicatrization of the chancre; the old, oft-quoted fallacy that a gonorrhea is no worse than a cold, the belief that a mild gleet is no longer contagious; and, finally, the most abominable of fallacies that a proper treatment for a mild gleet is sexual intercourse—even matrimony.

While a broader knowledge upon all of these points is most essential to the community in its own interest, yet this does not hit the root of the evil which, in my opinion, is the dual standard of sexual morality for the two sexes, based largely in modern days upon the idea that sexual exercise is, on the whole, sanitary to the male, if not essential to the best performance of his other general physical functions and necessary for the preservation of his sexual potency.

This idea, upheld by a considerable minority at least, perhaps by a majority of the medical profession, as well as by a large contingent of the laity in a loose way—this idea, I repeat, is the nucleus of the whole matter—and it is this idea that I propose to discuss.

From a medical source should come some authoritative utterance in controversion of this fallacy upon which, as a foundation, the lay educator may build—amplifying and elaborating his superstructure to any extent.

The early man probably obtained his wife by physical prowess and held her in subserviency, he doubtless doing the fighting and the bread-winning and she ministering to all his needs and wants, more as a favored servant than anything else. He was prince and she was subject to him. The right of man to exact sexual tribute from the weaker sex appears to have been granted as a matter of course. All the histories of prostitution touch upon this subject and make it clear that, in the earlier days in the East, it was considered a part of the duty of the host to provide for the sexual necessities of those to whom he

[1] Read before the American Society of Sanitary and Moral Prophylaxis, April, 1905.

owed the rite of hospitality, even considering it a courtesy to go so far as to offer his daughter for the accommodation of his guest. And this custom in its entirety, I have been told by a guide conversant with the remote regions of Morocco, still obtains in that district to-day.

Man in his strength and physical might, therefore, exercised a power of selection over the weaker sex and appropriated or dispensed the favors of the female at will.

The fighter seems naturally to be sexually overvigorous; the continuous physical worker and the athlete in training not so.

I am told by a general in the United States Army, who has seen a large amount of campaigning among the Indians in our Northwestern country, that, in his experience, the Indian undergoes a period of rut in the spring-time. Then it is that he paints his face, bedecks himself with feathers, and goes upon the warpath; and, when a band has raided a settlement—while the fighting is still going on—the warrior rushes in among the burning tents of the village of the enemy, and at once proceeds to ravage the women.

Women, as a rule, admire a fighter; one who is bold and aggressive appeals at once to them and is granted a favorable reception in a general way, while the feeble, effeminate male is looked down upon and turned slightingly aside.

Moreover, it is the well-known habit of the community to look leniently upon the sexual errors of the male, while those of the female are frowned down upon with unrelenting severity—as if to say, the lily once smirched is ruined forever, while the coarser fiber of the oak leaf may receive many a bruise and still be accepted by the community. This is illustrated forcibly by the popular sentiment existing to-day in the South. If a black man is known to have sexual relations with a white woman, he is run out of the town and fortunate if he escapes lynching. But if a black woman seduces a white boy, the matter does not appear to be so serious—lynching the woman, at least, is not one of the sequences.

In the same way, any jury in the North will deal gently with the man who shoots at sight the villain who has seduced his wife or daughter; but no one thinks of shooting the woman who, by her wiles, has seduced his son.

This spirit of recognizing a certain sexual right on the part of the male, therefore, still exists and is accepted and tolerated by the community as a whole—not by the church, not by the law, not theoretically by the community—but practically it is a fact that it is so tolerated.

How then is this sentiment, this tradition, this unwritten law to be overcome? Only by educating the young male, teaching him to develop his character, teaching him that his sexual yearnings are to be restrained like his propensity to overeat, to overdrink, to overexercise; teaching him that because he wants a thing it is not, therefore, necessarily good for him that he should have it, but often harmful; by assuring him that not only will he not perfect or retain his sexual potency by indulging in illicit intercourse, but that he is more likely by excess and irregularity to impair it—and this information it is the province of the medical profession to impart, and to impart it forcibly, speaking as a unit and with no uncertain voice.

But how shall we prove this last proposition upon which there are held diametrically opposite opinions in the profession? There is not time nor would there be much purpose in appealing to many authorities. I shall cite two, however, as types.

Milton, in his work on gonorrhea, boldly states that sexual intercourse is necessary for the preservation of the sexual function. He takes the broad stand that any organ, not exercised, gradually but necessarily loses its power, and that impotence is the direct consequence of continence—of course citing cases.

Acton, On the Reproductive Organs, on the other hand, with equal insistence claims that absolute continence is compatible with perfect preservation of the sexual function and, equally, cites striking cases in proof—and so on through the list of authors.

Is this expression of opinion then a matter of personal point of view? I think, manifestly, yes.

Anyone reading Milton's book is at once struck by the force, the vigor, the rankness of his style. Here is a physical man rejoicing in the air he breathes, the food he eats, in every vital act. He was, doubtless, full of physical necessity and recognized, as many stalwart young men certainly do, a consciousness of physical comfort, a clearing out of the cobwebs of his brain, a sense of bien-être, when following a regular and systematic sexual life, that was absent when his sexual relations were interrupted. There are many, very many, such individuals in the community; and if they cannot marry, they habitually resort to illicit connection and, because they feel better after the act, persuade themselves that they cannot live without it; and this is particularly true if they allow their imaginations to have full play.

Read Acton's book, on the other hand. Here is an intellectual type. He is no gross feeder and is not in any sense carnally minded. His delights are in the pleasures of the mind and the soul—and yet he is forceful, shows character, and is surely a manly man.

So one gets a few cases that support his thesis and generalizes from them; and the other does the same. Which is correct?

But now, leaving generalities, let me resort to the direct appeal.

One of you, gentlemen, has a charming daughter. She is delicate and refined, sensitive, emotional, but pure in heart and has no thought or suspicion of any sexual appetite, desire, or neces-

sity. She has reached the age of—let us say thirty years, and you recognize that, slowly but surely, her virginity is crystallizing and that she is getting angular in mind and body; opinionated, narrow, discontented—in short, that she is becoming an old maid. She does not know it; but you do. She is suffering from balked maternity.

Now, put yourself the question; you who, in the case of a young man apparently suffering from distended seminal vesicles or the teasing of insistent sexual desire, are perhaps willing to suggest sexual intercourse—would you brutally say to this fair sufferer—go and get a man? God forbid! Rather let her suffer; rather let her die, if need be, than debase herself and sully her vestal purity.

And why should not the same standard be held up to the boy? Why should not he be helped to form character by resistance and to cultivate manhood by honest purity of mind and body? For it is the imagination that does the mischief. Except in case of disease or strong inherited tendency, the sexual appetite is not insuperable. Very many honest citizens reach manhood without ever having practised sexual intercourse and are none the worse for it. Most of these have had nocturnal emissions and very many, it must be admitted, have practised self-abuse more or less; but the braver and purer minded among them are not injured by these occasional lapses from integrity and, if their minds are kept reasonably clean by manly exercises and outdoor sports, they are not in the least degree menaced by impotency. On the contrary, impotence, nervous or real, is vastly more often the result of sexual excess than of sexual continence, as the case-books of any practitioner interested in genito-urinary work will attest.

The testicle is a gland like the tear gland, largely under the control of emotional influences. It is not concerned in the ordinary actions and doings of everyday life. That one, by practising the emotion of grief or sadness and weeping copiously once a week or oftener may learn to perform the act of crying more creditably than some harder-hearted individual, I will admit; but this individual would not lose the power to cry even if he did not exercise it for half a century.

And, finally to leave the theory and opinion and come down to a matter of hard fact, capable of physical demonstration: It may be safely and surely affirmed that no amount of continence ever caused atrophy of the testicle.

Now, if continence, too long continued, can produce impotence, that fact should be evidenced by a wasting of the testicle. And I confidently assert that this is never the case; nor has anyone, to my knowledge, ever claimed it to be so. On the contrary, atrophy of the testicle, to a greater or less extent, very often follows prolonged sexual abuse and excesses—notably those of masturbation, because the latter are more excessive. Indeed, throwing the testicle wholly out of function forever in a physical way—as occurs after the blocking up of the excretory duct on both sides in double gonorrheal epididymitis—does not produce atrophy of the gland, as all physicians know perfectly well to be the case.

If there is anything more pitiable in life than the young sexual neurasthenic, debilitated by sexual irregularity and excess, it is the old man, the victim of years of irregular and illicit indulgence, whose mind still gloats over forbidden pleasures which his body can no longer gratify. Death is his best friend to terminate an unhappy and polluted existence.

If the youth, sowing the wind, could appreciate fully the whirlwind he is likely to harvest, it would stay him in many a mad act and conduce to the salvation of his body as well as of his soul.

SOCIAL PROPHYLAXIS AND THE CHURCH.

BY REV. HENRY A. BRANN, D.D.,
OF NEW YORK.

The menace to the very existence of the human race necessarily implied in the dreadful and loathsome disease which your honored and learned society exposes and opposes, has always met with powerful opposition from the Church. It could not be otherwise, considering that the Church hates and tries to counteract the vice which is the root of the disease; and that the human body, which is a necessary part of man, comes next in importance as an associate and partner to the human soul in the mind, in the theology and in the practice of the Church. Not only is it part of her divine mission and occupation to practice the spiritual works, but also and consequently the corporal works of mercy; and the sick of body, whether from their own fault or from the fault of others are special objects of her tenderness and care.

To the special form of disease in which your Society is so deeply interested she has always opposed the antidotes within her competence. But she has not yet exhausted either her power or her influence. One of the most important helps that she could give to society would be to make antecedent syphilis an impediment diriment of marriage. At the present time it is not such an impediment; but if it is clearly proved that the syphilitic directly endangers the life of the non-syphilitic contracting party and destroys the life of the offspring, the case would easily come into the category of matrimonial impediments, all of which have moral and social reasons for their existence. If consanguinity and affinity to the fourth degree inclusive, for social reasons, have been made impediment, there are reasons why syphilis should take rank in the category. That it is a reason for separation of the parties after marriage no one questions; particularly, if the syphilis be produced by the infidelity of the party suffering from it. No man or woman is compelled to live with an unfaithful partner, whether diseases follow the act of infidelity or not. Thus holds the Church and to this extent

at least she punishes the culprit and protects the innocent.

But even if the Church made syphilis an impediment diriment of marriage, the remedy would still be only partial and limited. The Church's law would be accepted only by her faithful adherents. Those not faithful or those rejecting her authority would still remain in the syphilitic zone; and no human power could completely limit their corrupting action. Still, even any limitation of the scourge would be a great benefaction for humanity.

Certainly the Church tries to eliminate the scourge. Her whole moral code and her sacramental system aim specially at the destruction of the vice of impurity which is the root and the fountain of disease. She holds up to young and old models of purity for imitation, particularly the fair white rose whom the poet calls "our tainted nature's solitary boast." Convinced as the Church is that education and knowledge alone are not adequate remedies, for experience shows that the medical schools, which have the greatest knowledge of the disease, are not immune from the vice which generates it; she insists on the special inculcation of the principles of morality and of purity in all her schools for the young. Nor does she stop at mere teaching in school.

She periodically during the year often separates the sexes, and gives to each lessons of warning regarding the dangers of the venereal scourge with which God smites those who violate the laws of purity. In every school of boys; in every school of girls; in every church during periods of retreat special instructions, admonitions, warnings, are given regarding the mental and bodily diseases consequent on sexual abuse.

The "missions" which are constantly given in our churches; the "retreats" given to women in convents, and to men in churches and colleges, are always opportunities which the clergy use to point out the dangers, physical and moral of impurity; and the plainest language is used so that there is no lack of knowledge on the subject.

As much depends on the conscience and on the strength of the individual's will, the Church tries to form and develop the one, and to strengthen the other. She trains the individual from his earliest years to loathe and shun the vice of impurity; and the occasions which lead to it; and both by word and example encourages him in the struggle against impulse and evil inclination. If he is weak, if he pleads weakness, she strengthens him by calling his attention to the fact that he is a free agent and that no internal or external temptation has the power to coerce the free human will. She reminds him that he is a free agent and tells him in his trials to call on the supernatural aids which are always ready for the Christian in prayer and in the sacraments. Constant prayer and frequent reception of the sacraments are her most potent factors in the prophylaxis of the individual and of the family from contamination and infection.

But the Church does not confine her action in this regard to mere instruction or warning. She does not try to protect social purity merely by strict surveillance over the conduct of the sexes in their relations to each other; and in their separate and isolated relations in schools and colleges; but she applies what I think is the most efficient remedy in the world for the elimination of diseases resulting from social impurity.

This remedy is the confessional. All who know the meaning and the power of the confessional will understand what I mean by this remedy. She claims it to be an institution of divine origin, the aim and purpose of which is to absolve the duly penitent from sin; and there is no faithful son or daughter of the Church who does not use this institution; and the most faithful Christian is the one who uses it most frequently. The little child from the age when he begins to think evil is taught to confess his sins in a tribunal, where sits a man who is at the same time a judge, a physician and a father. This man known as the priest is to warn the penitent against the first erotic impulse, the first impure thought, and tells him plainly, although not so explicitly as the physician, the physical dangers of the vice to which he is exposed. And if he fails and becomes the victim of passion, the priest consoles him, strengthens his renewed resolutions and passes him over to the physician for physical treatment. There is no priest who has experience but will tell your honorable society what every penitent knows, that a man will never become a syphilitic if he frequents the confessional and uses the means therein suggested! Nor will anyone with a Christian conscience, suffering from an infectious disease, enter into marriage, and he will certainly have this conscience if he goes to confession and obeys his confessor.

But even with all this teaching and practice, syphilis will be propagated; for the teaching of the Church and of all the professions does not control the majority, even of that part of the human race which is called Christian. The Church, however, will do her part in the great work which you are trying to accomplish and is always ready to cooperate with a profession which she has always loved and cherished; a profession that shares with her the credit of having done so much to relieve physical and mental infirmities. In protecting the sacred body of man from disease begotten of crime, the Church is the close ally of the medical profession; and both will ever work together for the physical and moral good of society.

Acute Carbon Bisulphide Poisoning.—ALBERT P. FRANCINE (*Am. Med.*, May 27, 1905) reports a case occurring in a man aged thirty-seven years, who was employed in a mill where carbon bisulphide was used in the manufacture of artificial silk. Up to the present time but few cases have been reported in American literature.

MEDICAL PROGRESS.

SURGERY.

Incontinence of Urine.—E. C. DUDLEY (*Journal A. M. A.*, June 3) describes a new operation for the relief of the urethrocele with imperfect urinary control, sometimes met with in multiparæ. It is based on the same principle as the operation of Albarran for the same purpose; the urethra, however, is not dissected free and the danger of its sloughing is avoided. The first step consists in denuding a horse-shoe-shaped surface between the meatus and the clitoris, and to either side throughout its length. In the second step of the operation the meatus is drawn up to a point near the clitoris and secured there by means of two sutures. The lateral portions of the denuded surface are then closed. The first two sutures stretch the urethra upward toward the clitoris, and the lateral ones tend to hold it in its new position. The idea is to straighten the urethra by longitudinal tension and to collapse it and to hold together the dilated walls and to overcome the sacculation at the neck of the bladder by traction. In many cases it may be necessary to operate at the same time for the associated cystocele, and in nearly all cases to perform perineorrhaphy for the relaxed posterior vaginal outlet. When there is very much relaxation of the tissues about the clitoris, and there is danger of it being pulled down, he would take a reef in the tissues above that organ, enough to keep it sufficiently high to hold the urethra taut. He has performed this operation five times since January 1, 1905. In the first four, the relief was immediate, and, so far as known, continuous. The last case is still too recent to be correctly estimated.

Value of Edebohls' Operation in Nephritis.—Decapsulation of the kidney behaves in many ways like a benesection: The operation itself is very bloody and increases the flow of blood within the kidney itself in the parenchymatous forms, while in the interstitial type a certain amount of pressure is taken away from the vessels, and the blood can more readily enter and leave the organ. Since most of the lesions must be ascribed to deficient blood-supply, it is evident that the process will be favorably influenced. In uremia, decapsulation will also do good, since the increased blood-flow will tend to remove waste-products. If the exciting causes of nephritis (lead, uric acid, alcohol) are kept out of the body, and sufficient healthy renal tisue is left, a cure may follow the operation. In the three cases of W. SCHEBEN (*Münch. med. Woch.*, May 9, 1905) the most marked sign of improvement after the operation was diminished excretion of albumin; the edema disappeared somewhat later.

The Operative Treatment of Fracture of the Patella.—Since the advent of aseptic surgery the treatment of fracture of the patella by the operative method is daily gaining more advocates, and is followed by better functional results than it was ever thought could be obtained by non-operative methods. H. M. RIGBY (*The Practitioner*, May, 1905) strongly advocates the wiring of every fracture of the patella unless there is present some definite contraindication. This view is taken as a result of a series of twenty-one cases operated on by the author during the past four years. Under the old treatment, by strapping, extension, splinting, etc., an average period of at least six weeks was spent in bed with the leg on a splint, and this was followed by a tedious out-patient treatment for several months. Finally, at the end of six or nine months, patient was left with a partially stiff knee, and was quite unable to follow any laborious occupation. By the operative treatment the patient remains in bed for a period of a fortnight after the operation, and for the first ten days the leg in kept in a splint. After fourteen days the patient is able to get up; he leaves the hospital at the end of three weeks and, as a rule, can walk without artificial aid. In six to eight weeks he is able to perform his usual work. The author claims that by the operative method: (1) The loss of time consequent upon the receipt of the injury is enormously reduced. A clear gain of at least six months can be figured on in an average case; (2) that the operation ensures sound bony union with a perfect functional result. In all the author's cases the open method of treatment was adopted. This consisted in: (1) Exposing the fragments by an incision which is preferably semilunar; (2) emptying the joint of blood-clot, serum and torn tissue; (3) freshening the surface of the fragments; (4) passing silver wire sutures through holes bored by a drill, and (5) suturing the lateral tears in the expansions of the quadriceps. The results obtained in this series of cases are interesting. In seventeen cases the average stay in the hospital after the operation was twenty-three and a half days. Sixteen of these patients were able to walk out of the hospital without any support, with the power of flexion of the knee to a right angle. Infection of the knee-joint occurred in one case which ultimately required amputation of the leg. In a second case an effusion of blood serum had to be evacuated under anesthesia. And in a third case there followed slight superficial suppuration, which was probably due to a lacerated wound received at the time of the accident.

Peritoneal Gauze Drainage.—W. D. HAGGARD (*Journal A. M. A.*, May 27) calls attention to the fact that the fancied necessity for drainage after abdominal section has been greatly lessened by the knowl- that the peritoneum can easily dispose of considerable amounts of blood and serum and that accumulatins of pus are generally sterile. He calls attention to the likelihood of wound infection from drainage after hernia operations, and to the danger of resulting hernia after infected abdominal wounds, and states that this is infrequent after wounds which have healed asceptically. He advocates drainage through the cul-de-sac of Douglas, and describes his methods in detail. He places the gauze in the abdomen, so that, after the operation is completed and the incision sutured, the gauze may be reached through a new incision in the vagina with less danger of infection

Bronchoscopy for Removal of Collar Button from the Lung.—E. FLETCHER INGALS (*Journal A. M. A.*, May 27) reports an interesting case in which a collar button had remained in the air passages for fourteen months. The fluoroscopic examination was practically negative. Under general anesthesia, a large amount of pus was evacuated, and in it were the remains of the collar button. The patient made an uneventual recovery.

Anchylosis.—J. B. MURPHY (*Journal A. M. A.*, May 20, 27 and June 3) reviews what is known of the embryology and the histologic development of joints, classifies the pathologic modifications of anchylosis, and discuses the formation of synovial sacs and their artificial production and the various tissues involved. The synovial fluid is, he finds, a liquefied collagen, a result of the degeneration of connective tissue, and not, as Virchow taught, a secretion from the surface

of the cavity. This fact is a basal one in the surgical management of capsular or articular anchyloses; another one is the thorough freeing of the tissues so as to allow unrestricted motion of the joint. Murphy believes that the elements that have most contributed in causing failures are the insufficient or defective exsection of the synovial membrane capsule and ligaments and insufficient interposition of fat and aponeurosis, or of fat and muscle, between the separated bony surfaces. After these come infection and sensitiveness to pain, limiting motion after operation. Muscular aponeurosis with fat makes the best interposed tissue; if this can not be had, then muscle and some fatty tissue should be used. Muscle flattens out into an aponeurosis in many joints, but it does not withstand so well the early pressure required for a good result. A number of cases are reported in detail, and, with the elaborate series of pictures, well illustrate these and other points brought out in the article. In conclusion, Murphy reviews the literature of the attempts to produce new joints, and says: "In our work we have been able, by the interposition of fascia and muscle, covered with a layer of adipose tissue, to produce normal movable joints, with capsules and collagen intra-articular fluid. This, we believe, is the first systematic production of new and practically normal articulations."

THERAPEUTICS.

Excision and X-rays Combined in the Treatment of Exophthalmic Goiter.—It is claimed that the pressure symptoms which are such a prominent feature of this disease are caused by an increased blood supply of the thyroid gland. This idea has been applied to the therapeutics of exophthalmic goiter and Kocher proposed that the larger vessels to the glands be tied off and the latter also, partially excised. The results were fairly good, although no effects were noticed at all in a certain proportion of the cases and in other the after effects were most disagreeable. C. BECK (*Berl. klin. Woch.*, May 15, 1905) is convinced, however, that the method should not be abandoned and from this observation with the X-rays on the vascular supply of new growths he is prompted to suggest that a similar effect on the vessels of the thyroid may be produced by the same agency. The final results may be accelerated if in addition one of the lobes of the thyroid be previously excised. In two instances in which partial thyroidectomy was not followed by any result after the elapse of a year or more, the rays were applied and a marked improvement in the nervousness and tachycardia was noticed. In a third case, the Roentgen rays were used immediately after operation with a much more satisfactory result. The sessions consumed at first five to ten minutes daily, and then were given weekly with astonishing effects, so that in five months time the remaining portion of the gland could scarcely be felt and the exophthalmos and the tachycardia had entirely disappeared. The case is of great interest and should animate a more general investigation of the subject.

A New Field for the Roentgen Rays.—GOERL (*Münch. med. Woch.*, May 16, 1905) has made the very interesting observation that goiter is very amenable to treatment with the Roentgen rays. The change set up in the diseased tissue is probably not due to closure of the blood-vessels but is an actual destruction of parenchyma cells, since a diminution of size takes place very rapidly. Soft tubes are generally employed for ten minutes at a time, at a distance of 10 cm. General symptoms, due to disturbed thyroid function, were never seen.

A Further Contribution to the Therapeutics of Iron.—After thorough experiments upon animals in pharmacological laboratories followed by clinical observation, SHEDMAKER (*Chicago Med. Rec.*, April, 1905) states that ovoferrin, a new compound of iron, is the only iron yet produced which meets the requirements established by those authorities from whom were obtained most of the laws governing present-day scientific therapeutics. His clinical observations cover a series of 117 cases, consisting as follows: Secondary anemia from hemorrhage, 8 cases; gastric ulcer, 6 cases; convalescence (from typhoid fever, pneumonia, diphtheria, rheumatism), 18 cases; headache, due to anemia, 8 cases; the anemia of chronic parenchymatous nephritis, 6 cases; incipient pulmonary tuberculosis, 8 cases; neurasthema, with marked anemia, 10 cases; anemia from prolonged lactation, 7 cases; chronic gastro-intestinal catarrh, with anemia, 8 cases; convalescence from infantile diarrhea, 12 cases; nervous school girls, with anemia, 10 cases; malaria cachexia, 4 cases; chlorosis, 12 cases. The author concludes as follows: (1) That a careful study of the authorative researches on the physiologic and therapeutic effects of iron show a well-defined relationship between the chemical constitution of iron compounds and their comparative assimilability and therapeutic effects; (2) that the group of compounds of which ovoferrin is at the present time the only representative, constitute the best method of administering iron in clinical conditions attended with blood impoverishment because (*a*) it is more rapidly and completely assimilated as proved by the greater increase in hemoglobin and red blood corpuscles as evidenced by clinical studies of its effects in comparison with other forms of iron. (*b*) It does not disturb digestion, irritate the alimentary tract or produce constipation. (*c*) It has a noticable effect in increasing the appetite. (*d*) It has in addition to its hematinic action, a pronounced effect upon general nutrition which endows it with value as a general tonic in clinical conditions attended with general debility.

The Antiseptic Properties of Smoke.—The popular notion that fumes of various burning substances have healing properties, is not without scientific foundation. M. A. TRILLAT (*Les Nouveaux Remèdes*, April 24, 1905), finds that the smoke of wood, sugar and various other substances contains an appreciable quantity of formaldehyde gas. Saccharose when burnt yields a smoke that contains a fairly large quantity of this gas. This probably explains the beneficial effects which have been attributed to the smoke obtained by burning raisins or grapes, a practice which is found in the traditions of household medicine, and which may be traced back to Hippocrates. The author found that smoke markedly inhibits the growth of bacteria.

Mercurial Injections in the Treatment of Syphilis.—This subject is reviewed by LAMDIS in (*Gazet. des Hospitaux*, April, 1905) as to method therapeutic action and value. *Methods.* (1) The local or Bouchard's, in which the injection is made into the site of a specific lesion. Under this head come the subconjunctival and subarachnoid injections; (2) the intramuscular injections, the most frequently employed, least painful and assuring rapid absorption; (3) the subcutaneous, which, however, has been almost superseded by the intramuscular; (4) the intravenous, very delicate and exceptional; (5) most recently the intratracheal. Both soluble and insoluble salts and metallic mercury are used. Biniodid and benzoate are most commonly employed. *Therapeutic Action.* A local re-

action is first noticed; pain and inflammation varying with the different preparations used. The specific action is the same as with other methods of administration, but more definite and quicker. It is possible to calculate the amount absorbed. It is customary to inject daily a quantity of mercurial representing .01 gm. of metallic mercury. A possible toxic action due to additions of other substances, to certain forms of mercury (cyanide for example), or to intolerance, must be kept in mind. Absorption is rapid; in the intravenous method instantaneous. Elimination begins early and is the same as in other methods. *Advantages.* (1) Maximum effect from a given dose. (2) Exactness of dosage. (3) Non-interference with the digestive system. *Disadvantages.* General intoxication and local accidents. On account of the rapid absorption it is impossible to counteract intoxication in time. Of local symptoms continued and severe pain, extensive inflammation, and sometimes even a febrile condition are objectionable. *Indications.* (1) Grave complications, such as coma, lesions of vital organs (larynx, ear, eye) and extensive phagedenic destruction call for a method of quick results; (2) when other methods fail to accomplish the desired result; (3) in certain cases, for quickly establishing a diagnosis. Intolerance of the skin and stomach and social conveniences of the patient make injection the treatment of choice.

X-ray Treatment of Cancer.—The microscopic changes in the tissue, says E. G. Williams (*Journal A. M. A.*, May 6), should be our guide as to the therapeutic possibilities in the X-ray treatment of malignant growths. It is evident, he states, that the elements of the tissues are affected according to their vitality. Dead organic matter is unaffected, and the more active the growth the greater the effect. Next to this is the accessibility of the tissues to the rays. Hence the better results with superficial or skin cancers. That moderately deep tissues can be affected is shown by experience, and the way to reach them without producing necrosis of overlying tissues is to lengthen the distance of the tube and the time of exposure. For deep growths, radical surgical measures should be recommended, as the patient should be given the benefit of the probability rather than the possibility of good results. In such cases, however, operation might be rationally followed by X-ray treatment to destroy what may remain of the malignant growth. Inoperable cases should be treated by the X-ray because remarkable results have been obtained and the most distressing symptom of pain relieved.

Protection from Roentgen-Ray Injuries.—C. L. Leonard (*Journal A. M. A.*, May 6) calls attention to the serious risk that X-ray operators undergo, especially if they follow the practice advised of testing the qualities of the rays on their hands with the fluorescent screen. The only practical method is to limit their radiated field by covering the Crookes tube. For this purpose he uses a pasteboard box a little wider than the diameter of the tube and covered with X-ray lead foil a little heavier than the ordinary tea lead. This extends two inches below the bottom of the box, and can be adjusted so as to limit the field to any extent required. It is not necessary to cover the anode end, and the box is held on a bracket over the portion of the body to be treated; if a very small field is required, a local shield may also be employed. He thinks possibly some effects are due to the strong induction field surrounding the coil which, especially in large hospitals, should be kept in another room, but with the controlling apparatus within the operator's reach. For the dermatitis of the operator's hands, he advises twice daily soaking in very warm water and scrubbing with Eichhoff's superfatted resorcin soap, followed by inunction of lanolin containing half an ounce of boric acid and a dram of resorcin to the ounce. For the acute erythema of X-ray treatment, he employs a stearate of zinc powder with 10 per cent. ichthyol, which he thinks acts as a prophylactic against severe burns. This should not be confused with stearate of zinc ointment, which may do harm.

PRESCRIPTION HINTS.

Dysmenorrhea.—In spasmodic and neuralgic dysmenorrhea the following prescription will prove beneficial if administered several days prior to and during the menstrual epoch:

℞ Extracti hyoscyami fluidi.....5ii
Extracti cannabis Indica fluidi.....5i
Extracti cimicifugæ fluidi.....5iv
Spiritus camphoræ 5i
Spiritus etheris compositæ.....q.s. ad. ℥iii

M. Sig. Teaspoonful in water three times a day.

Ptyalism.—For tender, bleeding gums from any cause, associated with fetid breath:

℞ Formaldehyde (40 per cent. sol.).....5i
Thymoli .....gr. x
Tincturæ benzoini compositæ.....5ii
Alcohol .....q.s. ad. ℥iii

M. Sig. Teaspoonful in wineglass of water as a mouth wash every two or three hours.

Trigeminal Neuralgia.—During the acute attack it is often the best policy to resort at once to the hypodermatic use of morphine, which will not only still the pain and bring the patient quick relief, but, as some authors claim, it may even have a curative effect. The danger of establishing the morphine habit renders a trial of other analgesics preferable in all but the most severe attacks. Quinine in ten grain doses, repeated once or twice, should be given when there is the least suspicion that malaria may be the underlying cause. Salicylate of soda stands only second to quinine with which it may be given and by combining with them one of the coaltar derivation a most effective anti-neuralgic preparation is obtained. The dangers attending the administration of the last mentioned class of remedies should never escape the physician's memory. Gelsemium in doses of five to fifteen drops of the tincture is a powerful remedy that is less used now than formerly. Iodide of potassium in full doses is often beneficial even in patients in whom no suspicion of syphilis exists. Arsenic in the form of Fowler's solution is one of the most reliable remedies. Counter irritation of any kind may bring relief. An elegant preparation will be obtained by mixing in equal parts chloral hydrate, camphor and menthol. On sensitive faces this may cause a blister. Heat or electricity is useful and should not be forgotten when running the therapeutic gamut in search of the the remedy for the individual. In selecting the effectual treatment for each patient there is opportunity for the exercise of much skill on the part of the physician in testing the several lines of treatment in rapid succession. Should all fail the intervention of surgery must be sought.

For Headache of Ovarian Origin.—

℞ Ammonii bromidi 5vi
Ext. hydrastis fl. .....℥ss
Tinct. gentian. comp. .....℥iss
Aquae .....℥iv

M. Sig. A dessert-spoonful three times a day.

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ONE ASPECT OF THE TUBERCULOSIS QUESTION.

Tuberculosis will never be conquered until the public intelligence grasps the situation and the public will is directed to grappling with it. Consequently it is gratifying to note the educational trend of present efforts as exemplified in the deliberations of the Society for the Study and Prevention of Tuberculosis.

How most surely and swiftly to accomplish this educational end is the practical side of the question. No education will be received which does not arouse a personal and active interest, and to arouse such an interest in the public at large it is necessary to appeal to an absolutely universal motive.

All are not born altruists, but some achieve altruism and some may have altruism thrust upon them. Some will join in the antituberculosis campaign from sheer philanthropy; some by personal experience or that of their friends have come to recognize the needs of others; but there remains a large proportion of the frankly self-centered who can be made to realize the situation only by pointing out to them the economic value as such, by charging it up to profit and loss. Those who listen unmoved to the horrors of the White Plague among the tenement population, because of their very remoteness, are arrested by the fact that each death from tuberculosis entails an economic loss to the community of from $1,500 to $2,000. What does this imply to the city of New York alone? By conservative estimate an annual loss of productive labor amounting to over $20,000,000. The same calculations as applied to the whole country give a total annual loss of $330,000,000. Surely in view of these figures it is not unreasonable to demand the same sum to be applied to prophylactic measures which shall ultimately eliminate the needless loss.

Such are the arguments which must be presented in order to bring about a popular cooperation between the ideals of the altruist and the investments of the commercialist.

It should be the function of every practising physician to foster and further this point of view, and when the public shall have accepted it with its implication of utilizing national resources as an ounce of prevention rather than as a pound of cure, then and not till then, as Mr. Devine justly points out, the ultimate responsibility devolves again upon the medical profession.

Let no one think that the success of the economic appeal implies a purely sordid and commercial spirit. Such success is achieved only through a growing sense of essential unity in the social body, a sense pregnant with hopeful possibilities.

THE PROPHYLAXIS OF SCARLATINAL NEPHRITIS.

It is twenty years since Jaccaud recommended an absolute milk-diet in scarlet fever, as an efficient precaution against nephritis, and this practice has been universally followed. But, recently, doubt has arisen in the minds of many clinicians as to the wisdom of this procedure. The experience of one careful observer may serve to put these doubts to rest.

The observations of San.-R. Dr. Ziegler (*Centralblatt f. Kinderheilk.*, May, 1905), represent his experience in the treatment of 218 cases of scarlatina, both in private practice and in the Hospital for the Orphans of Military Men in Potsdam, his observations extending over a period of fifteen years. During the first half of this period there were 115 cases which did not receive the prophylactic milk-diet. Of these cases fully 50 per cent. developed nephritis, of which five died. In the remaining half of this period, in the 103 cases of scarlet fever, 100 received a milk-diet, with not a single case of nephritis. Of the remaining three cases which

did not receive a milk-diet, two developed nephritis.

Statistics have sometimes been characterized as exceedingly untrustworthy, particularly in medicine. The above figures, however, are a convincing argument in favor of the prophylactic treatment of scarlatinal nephritis.

In spite of these and similar experiences, many modern clinicians still look with dubious eyes upon the efficiency of the milk-diet in scarlatina. Of these Baginsky favors milk-diet for only the first fourteen days of the disease, and believes that even then the possibility of the appearance of nephritis cannot be avoided.

Another observer, Zuppinger, of Vienna, utterly discredits any preventive value of the milk-diet in scarlet fever, and of the same belief are Piza (Hamburg) and Fischl, in Biedert's Text-Book of Children's Diseases, who, moreover, attribute to the milk-diet a positive harm to the patient, by diminishing his nutrition.

If the earlier experiences of Ziegler may be cited as an argument in favor of the milk-diet, then his results since 1892 may be considered an adequate refutation to the argument of the above. During this time he treated 138 cases of scarlet fever, of which 131 received the milk-diet. Of these 130 remained free from nephritis, while one case suffered from nephritis after a complicating attack of diphtheria. The other six cases entered the hospital during the stage of desquamation, with nephritis in full blast, while one contracted it owing to disobedience of orders in partaking of a mixed diet with other patients. In these seven cases, therefore, the prophylactic milk-diet was not employed.

All these cases reported comprised 13 hospital epidemics and 24 isolated cases, and represented forms of scarlet fever of practically the same type and virulence. The results of Ziegler, therefore, furnish a nice scientific demonstration of the value of this dietetic procedure, which may be placed in the same category, as regards convincing completeness, with the statistics of the antitoxin treatment of diphtheria.

SOME COMPARISONS.

Nothing is more salutary and illuminating than an occasional unprejudiced comparison of our own standards with those of others. An opportunity for such a comparison is offered the American medical profession in the statistics and comments set forth in the *British Medical Journal* for June 3, already referred to editorially in our issue of June 17, 1905. These statistics include summaries of the educational and legal requirements for the practice of medicine in 19 foreign countries and colonies.

Viewed as a whole the uniformity of these standards is more noticeable than the deviations. In certain items the requirements of foreign countries are practically unanimous among themselves but different from those in America, particularly in the length of time required to be spent in medical study, which covers a period of from five to seven years. The entire cost of tuition, also, strikes the American mind as temptingly low. In France, for instance, the total necessary cost of a professional education is estimated at something less than $300. A preliminary general education is a universal requirement abroad, ranging from a liberal high-school course, as in Holland, to one terminating in the degree of B.A., as prescribed in Denmark. In many instances a generous allotment of the classics is specifically indicated. It is possible that in certain cases these preliminary requirements are more imposing upon paper than in actuality. Spain, for instance, prescribes the equivalent of "the degree of bachelor," but the fact that the course is usually covered "between the ages of nine and fifteen years" indicates its secondary character. For the most part, however, the statements undoubtedly represent solid and actual attainments. At the lowest, this contrasts with the general condition in this country, where so many of the medical institutions practically waive preliminary education.

The medical course once embarked upon differs very slightly from that in our own country, comprising courses in physics, chemistry, histology, anatomy, pathology, materia medica, general medicine, surgery, obstetrics and the special branches. The curricula of the various countries differ chiefly in point of emphasis. Thus in Germany stress is laid upon personal clinical instruction, whereas in Italy the method is largely one of demonstration, allowing a wider field for experimentation and research, but failing to provide, as the clinical system does, the personal contact with actualities and the precision consequent thereon.

It is interesting to note how the twofold aspect of the profession, academic and social, which is indicated in this country by the double requirement of diploma and license, is recognized abroad. In France and Italy the State license carries with it the title of Doctor of Medicine. In Austria,

Hungary, Denmark, Belgium and Spain, the degree carries with it the State license. In the latter four countries, however, the university practically is a department of the State. In Germany the two phases are kept distinct, the *Staats-Examen* giving the right of practice, but not conferring the degree, a function reserved to the university. The degree is said to be taken, however, by nearly all practising physicians in Germany. In Holland, where a similar separation obtains, the difficulties in the way of getting a doctor's degree as regards preliminary education and academic training make the majority content with the degree of *Arts*, which confers the privilege of practising.

An interesting corollary to the matters noted is to be found in the notes on the social conditions existing in the various countries. Oddly enough the extremes in this respect are both found in Latin countries, the lowest in Italy where the profession is recruited from those of plebeian birth to whom the doors of "society" are forever closed except in instances of phenomenal eminence, and the highest in Portugal where doctors are "at the top of the social ladder." In Hungary a doctor wins little recognition, and in Austria his standing is only fairly good. In the Netherlands, however, a certain prestige attaches to the profession, and in Denmark doctors are regarded with the same respect which is accorded to the minister and the judge.

In most European countries there is a suggestion of caste foreign to American ideas, but in other respects the privileges, duties and problems of the profession are much the same as we find them here.

ECHOES AND NEWS.

NEW YORK.

$17,000 to Kill Mosquitoes.—The Appropriation of $17,000 for the mosquito warfare which Health Commissioner Darlington proposes to conduct on Staten Island, has been granted by the Board of Estimate.

New Emergency Hospital.—St. Gregory's, a new emergency hospital has been opened in the four-story building at 93 Gold Street. It will take the overflow from the busy House of Relief in Hudson Street. Superintendent Flater, Assistant Superintendent Duncan, three ambulance surgeons and four nurses make up St. Gregory's staff. The hospital has also two visiting surgeons.

Brownsville's Hospital.—Young women and young men of Brownsville have formed a society called the Mount Carmel Benevolent Association. The object of the society is the building of a hospital, in some select place of Brownsville, for the benefit of the poor. The hospital will be named the Mount Carmel. The society has about two hundred members, and donations were received last night amounting to $1,200, including dues.

No Site Chosen for the City's New Tuberculosis Sanatarium.—Dr. Darlington, president of the Board of Health denies the report that he had secured a site in the towns of Greeneville and Mount Hope, for the new tuberculosis sanitarium. He said he had looked over a number of sites, and had secured options on some. He has the consent for two locasions near the Hudson River, forty miles from New York, and thought it probable that he would take one of these.

City in Good Health.—The death-rate in this city for the first six months of this year was considerably lower than for the corresponding period of 1904. It was nearly as low as the death-rate in 1903, and but for cerebrospinal meningitis would have been the lowest death-rate for several years. The death-rate for the past six months was 19.75; for 1904, 22.68 and for 1903, 19.14. For the week ending on Saturday last the death-rate was 18.55 as compared with 21.63 for the same week in 1904.

Ambulance Surgeon Injured.—Dr. T. Harris Cherry, a surgeon in Hudson Street Hospital, was injured, perhaps fatally, and his driver, Edward Stokes, was hurt, when an ambulance in which they were answering a call for a Fourth-of-July accident was struck by a northbound Sixth avenue trolley car at Centre and Reade streets, on July 4. As a result Dr. Cherry is suffering from posible fracture of the skull, scalp wounds, five broken ribs and internal injuries. He was taken back to the hospital, where his condition is extremely serious, particularly because of his internal injuries. He is a native of Georgia and a graduate of the College of Physicians and Surgeons of this city. He has been at Hudson Street Hospital about a year.

PHILADELPHIA.

Infected During an Operation.—While performing an operation some time ago Dr. Francis R. Packard infected one of his fingers and as a result he is now ill at the Pennsylvania Hospital; his condition is improving and recovery is expected.

To Study Foreign Methods of Nursing.—Miss Georgie R. Weaver, directress of the Philadelphia Lying-in Charity Hospital, and Miss Edith A. McPherson directress of the Nurses Training School of the Medico-Chirurgical Hospital, sailed for Europe last week. They will visit various hospitals in Germany, France and England to study the methods of nursing.

Free Bed Endowed.—P. F. Kernan has endowed a free bed in St. Mary's Hospital, in memory of Harriet Richards, of this city, who died last year. Mr. Kernan has stipulated that the bed shall be used by any worthy person without regard to color, race or religion. It will be under the patronage of the Sisters of St. Francis attached to St. John's Catholic Church.

Meeting of the Dental Association.—After many papers pertaining to dentistry were read, the society elected Dr. H. W. Arthur, of Pittsburg, president; Dr. J. T. Lippincott, of Philadelphia, first vice-president; Dr. L. N. Weaver, of Philadelphia, recording secretary; Dr. V. S. Jones, of Bethlehem, corresponding secretary; Dr. R. H. D. Swing, of Philadelphia, treasurer. Dr. W. J. Roe gave a clinic at the Jefferson Hospital upon two case of cleft palate. The Medico-Chirurgical Hospital gave luncheon to the members of the society.

To Keep in Touch with Hospital Reports.—Auditor-General Snyder has instructed the traveling auditors of Pennsylvania to examine every three months the books of all the hospitals receiving State aid, and report to him the number of free patients, the number of pay patients, and the amount paid weekly by the latter. This information will be sent to the legislature to be used in regulating the amount of appropriations given to each hospital. This procedure will prevent padding hospital reports when appropriations are wanted.

CHICAGO.

Decrease in Contagious Diseases.—With the exception of smallpox, all the other contagious and infectious diseases show a decrease in the number of cases reported.

Opening Exercises of the Chicago Emergency Hospital.—This hospital was opened Tuesday, June 27, at 309 Fifth Avenue. Dr. Richard M. Fletcher is surgeon-in-chief.

Graduation Exercises of Jenner Medical College.—The Jenner Medical College also held its graduation exercises this week, when 15 degrees were given. The address was delivered by Dr. Stuart Johnstone. The class valedictorian was Dr. John D. McKellar.

Hospital Population.—The hospital population of Chicago is lower than at any time since last November, numbering 1,798. The only disquieting feature in the state of the public health is an increase of the typhoid fever contingent, which is unusual at this time of year, and is due, probably, to the quality of the water supply during the past two months.

Commencement Exercises of Dearborn Medical College.—The college held its commencement exercises this week, when 29 students received degrees. James H. Eckels was the principal speaker. He referred to the great responsibilities which rest on physicians, and emphasized the importance of long and careful preparation needed for that profession.

Chicago Casualties.—Returns to the *Record-Herald* up to eleven o'clock P.M., covering Fourth-of-July fatalities, accidents and fires show that twenty-one are dead and 536 injured on account of the celebration. Like figures a years ago up to two o'clock in the morning showed forty-eight fatalities and 1,545 injured. Casualties this year show the following causes: Runaways, 11; toy pistols, 28; powder burns, 70; firearms of all kinds, 94; fireworks, 298; cannon, 35.

Smallpox.—More cases of smallpox have been discovered in this city since the first of the year than during the whole of the previous year. The health department, suspecting that laxity in vaccination is the cause of the increase, have planned to renew a campaign of education. Vaccination of children at an early age is deemed advisable, in view of the fact that most of the cases recently reported have been among the younger children.

Chicago Medical Society Seeks to Enjoin Park Board.—Injunction proceedings have been begun by the Chicago Medical Society to restrain the south park commissioners from interfering with the erection of a monument to Samuel Guthrie in Grant Park, at the foot of Jackson Boulevard. The officers of the medical society assert that it is their right, under ordinances passed by the park board and the city council, to carry out their monument plans. It is believed the park board will make vigorous opposition to the suit brought by the society.

Michael Reese Hospital.—The corner-stone of the new Michael Reese Hospital was laid last Tuesday, July 4, at 10 A.M., by Herman F. Hahn, Chairman of the Hospital Committee. Governor Deneen was present as the guest of honor, and delivered an address. The new hospital, costing $500,000, will be completed next May, and will be six stories in height, of solid masonry, steel and tile, and equipped with the most approved system of heating, lighting and ventilation. There will be accommodations for 240 beds, including sixty private rooms. There will be three operating rooms, and special provisions for isolating patients in the surgical, medical, gynecological and maternity departments. The children's building for both pay and charity patients will be separate from the main buildings, and will have an entrance from the outside.

GENERAL.

No More Plague in Panama.—The indications now are that the danger of the spread of bubonic plague has passed, owing to the energetic and prompt measures of the United States health officials. There has been only one case of the disease, that which occurred at La Boca, and since that was reported the period of incubation has passed without any new case developing. The infected La Boca wharf and village are now thoroughly cleaned and fumigated. If there are no new cases within a fortnight it is the intention to declare La Boca free of plague. In the meantime vessels are being discharged and loaded in Panama Bay. La Boca is entirely isolated.

Foreign Food Products.—Dr. Harvey W. Wiley, chief of the Bureau of Chemistry, is on his way to Europe under instructions from Secretary Wilson, to make an exhaustive investigation of methods of preparing and preserving food products for shipment to America. He will visit all of the leading cities of Europe which have an export food trade with the United States and will be gone until the middle of September. The policy is to have a more rigid inspection of foods. Upon his return laboratories will be established in Boston, Philadelphia, New Orleans and Chicago. At present the only inspection laboratories are in New York, San Francisco and Washington.

Control of the Tsetse-Fly Peril.—The Cologne *Gazette* prints extracts from private letters written by Prof. Robert Koch, who went to German East Africa at the end of 1904 for the further investigation of certain tropical diseases, showing that he had already made important discoveries in connection with the tsetse fly. The Professor found the breeding ground of the fly, and says that the fly can be rendered harmless through simple means. It will be remembered that Professor Koch made the still more important discovery that trypanosoma microbes, which are present in sleeping dropsy, exist in the tsetse fly. He further discovered in April last that the relapsing fever is transferred to man through a small sand tick.

Yellow Fever Situation.—The Panama Canal Commission has received a report by cable from Gov. Magoon relative to the yellow fever situation in June. Only two deaths occurred among employees appointed by the United States and two from among employees of the commission appointed to the Isthmus. The official records show that on June 1 there were employed on the Isthmus 1,493 Americans and 8,209 persons appointed on the Isthmus. On June 27 Gov. Magoon reported the death of S. J. Hirsch, an American clerk in the employ of the Canal Commission. Giovanni Janicelli, non-employee, died on July 1 of yellow fever. No additional cases were reported on that day.

Mosquito Reduction in California.—The California State Board of Health, in its monthly leaflet for April, 1905, calls attention to the utility of a crusade against mosquitoes in certain parts of the State for the purpose of minimizing malarial infection. Last year the marshes about San Rafael were inspected by representatives of the entomological department of the University of California, and those found infested with mosquitoes were treated with crude oil, giving the most satisfactory results, until late in the year, when lack of funds caused a suspension of work and a consequent increase of mosquitoes. A large marsh area, extending from South San Francisco nearly to San Mateo, is the seat of operations this year. Fresh water areas, which abound in the region under treatment, are either filled up with earth, drained, or treated with oil.

Boston Floating Hospital.—The Boston Floating Hospital will commence its trips down the harbor July 6, continuing until late in September. This excellent charity was founded in 1894 by Rufus Tobey, who has given his services to it since that date. A large sum of money is on hand and more is being collected for a new and larger boat, but for this season the present one is being overhauled. The new hospital will, it is hoped, accommodate 100 patients and be provided with a permanent contagious ward. The only requirement for admission is the signature of a physician on a properly filled out certificate; these certificates are in the hands of all the hosiptals and many physicians. The patients must be under six years of age; provisions are made for mothers and one other child during the day.

State Board of Health Guards Against Tetanus.—The June bulletin of the State Department of Health of Massachusetts called special attention to the fact that tetanus frequently follows Fourth of July and other injuries, especially where dirt, paper cartrige wads and other foreign substances are carried into the wounds. It urged all physicians who treat persons injured in this way to administer preventive does of tetanus antitoxin at the time the wounds are dressed. This procedure will surely prevent lockjaw. The department believes that many cases of this disease were prevented last year by this means, but says that there is no reason why every case could not be prevented. Generous supplies of the antitoxin produced in the department's antitoxin laboratory were sent to local health officers of all the large cities and villages and many towns, and the bulletin urged such officers to spread broadcast the information that any physician can obtain gratis what he needs by applying to the health officer.

India and Applied Chemistry.—At the Sixth International Congress of Applied Chemistry, which is to be held in the spring of 1906, at Rome, India, and its work in this direction will be officially represented for the first time. The committee in charge of matters consists of Major C. H. Bedford, D.Sc., M.D., of the Indian Medical Service, Chemist to the Imperial Government of India, as president, and of eight members, all of whom are either Professors of Chemistry at the Indian Universities or chemists to one or other of the provincial governments. There is room for a great deal of original work in India in various branches of applied chemistry, and of late years much activity has been shown. In particular the physiological action and chemical nature of various by-products found in different kinds of native spirits is being investigated at the County Liquors' Laboratory, at Kasauli, of which Major Bedford is director, the object being to enable the government of India to prescribe standards and tests of quality for the different forms of alcoholic liquor locally prepared.

Typhoid Due to Milkman.—A number of cases of typhoid fever are reported in Lynn, Mass. Although the health board of that city has received returns of only one case during the past month, the fact remains that the situation is of such a nature as to cause some anxiety among the physicians. One physician has six cases at present, and others have a lesser number, and the fact that the Lynn health board records show but one case is due to the failure of physicians to report the cases, as they are required to do by law.

Dr. Frank L. Morse, inspector of the State Board of Health, visited Lynn recently to look into Lynn's water supply. He is said to have expressed some uneasiness over the low condition in which be found the storage basins. Dr. Morse discovered that a boy who was employed by a milkman was taken ill with typhoid fever. The boy assisted in bottling and delivering the milk. He worked several days before it was discovered that he was afflicted with typhoid fever. Dr. Morse believes that this boy was the original cause of at least seven cases of typhoid fever. About ten days ago the milkman was taken ill with typhoid fever.

To Reform Hot Springs, Ark.—Hot Springs, Ark., sometimes called the Monte Carlo of the Southwest, will no longer be a haven for the sporting element of the country, if Mr. Hitchcock, the Secretary of the Interior, can prevent it. The Hot Springs reservation is under the jurisdiction of the Government, and Secretary Hitchcock is the responsible officer. He has received many complaints from Government agents recently to the effect that Hot Springs is coming to be looked upon rather as a gambling than as a health resort. Secretary Hitchcock intends to preserve the utility of the reservation as a health resort if possible, but he is at loss as to how to proceed. The gambling resorts and questionable houses are off the reservation proper, and Government authority is accordingly limited. It is believed, however, that by amending the regulations governing the use of the springs the moral tone of the place can be bettered. Failing in this, Secretary Hitchcock will take another tack. Politics is said to be responsible for the fact that Hot Springs is a wide-open town. Complaint is made by reputable citizens there that efforts to reform are frustrated by the politicians. If the Secretary of the Interior finds that he is powerless to reach the lawless element he will call the attention of the Attorney-General to the conditions, with a request that he endeavor to bring about the enforcement of the laws by the local authorities.

The Disease Problem on the Isthmus.—The troubles in the Panama situation are apparently increasing daily. The resignation of Chief Engineer Wallace at a time when his own plans for organization are left in a confused and incomplete state and when so much depends on centralized and authoritative control of a complicated system of work is followed by the news of yellow fever cases increasing in number and also the appearance of bubonic plague on the Isthmus. While there may be no occasion for serious alarm as to the immediate spread of either disease, their existence in any shape cannot fail to have a depressing effect on the workmen already on the ground and will inevitably demoralize others who may contemplate joining the force. The fear of the disease has spread to other ports in the neighborhood, and a declaration of quarantine against the canal belt will by no means tend to quiet public opinion regarding the present situation of affairs. It is quite evident that the sanitary problem is the one of first importance. The most strenuous efforts of the chief medical officer at Panama should be directed toward stamping out both pests with the least

possible delay. If he has been hitherto hampered in any way he should be given the freest rein for the exercise of his authority. In no other way can the present difficulties be properly met. In the present state of sanitary science and when the well understood preventive measures are properly applied there is no longer any reason why yellow fever or plague should exist anywhere, especially in such districts as are under the control of the United States government.

American Climatological Association.—At the recent annual meeting of this association Dr. E. L. Shurley, of Detroit, was chosen president and Dr. Guy Hinsdale, of Hot Springs, Va., secretary. The next meeting will occur at Atlantic City, May, 1906.

International Surgical Society.—The first congress of the International Surgical Society will be held in Brussels from September 18 to 23, 1905, under the presidency of Professor Theodor Kocher, of Berne. The following is the program of subjects proposed for discussion: (1) "The Value of the Examination of the Blood in Surgery," to be opened by Dr. W. W. Keen, of Philadelphia; Professor Sonnenburg, of Berlin; Dr. Ortiz de la Torre, of Madrid, and Dr. Depage, of Brussels. (2) "The Treatment of Prostatic Hypertrophy," to be introduced by Mr. Reginald Harrison, of London; Professor Rovsing, of Copenhagen, and Professor von Rydygier, of Lemberg. (3) "Surgical Intervention in Non-Cancerous Diseases of the Stomach," to be introduced by Mr. Mayo Robson, of London; Professor von Eiselsberg, of Vienna; Dr. Mattoli, of Ascoli Piceno; Professor Monprofit, of Angers; Professor Rotgans, of Amsterdam, and Professor Jonnesco, of Bucharest. (4) "Treatment of Articular Tuberculosis, to be introduced by Professor Bier, of Bonn; Dr. Broca, of Paris; Dr. Bradford, of Boston; Professor Codivilla, of Bologna, and Professor Willems, of Ghent. (5) "The Treatment of Peritonitis," to be introduced by Professor Lennander, of Upsala; Professor Friedrich, of Greifswald; M. Lejars, of Paris; Dr. McCosh, of New York; Professor Krogius, of Helsingfors, and Dr. de Isla, of Madrid. (6) "The Diagnosis of Surgical Diseases of the Kidney," to be introduced by M. Albarrán, of Paris; Dr. Kümmel, of Hamburg; Dr. Giordano, of Venice, and Dr. Lambotte, of Brussels. Other communications of a practical character, including the presentation of patients, specimens, and instruments, may be made. The conditions of membership of the Society, and further information relating to the arrangements for the forthcoming congress, can be obtained from the Secretary-General, Dr. Depage, 75 Avenue Louise, Brussels, or from Mr. Reginald Harrison, London, delegate for Great Britain.

Cancer Research.—Sir William Church, president of the Royal College of Physicians, addressed the third annual meeting of the cancer research committee, July 5. He said that the year's investigations confirmed the conclusions announced in 1904, that cancer is not associated with peculiarities of diet, climate or mode of life. The experiments had yielded the most interesting results, including a demonstration of the possibility of perpetuating malignant new growths through successive generations of mice in such a way that the cancer cells appeared to be gifted with the power of perpetual multiplication. This power, however, was not manifested at all times and under all conditions. The results thus obtained point to the necessity for more closely studying the processes of cell multiplication, for in this abnormal proliferation and reproduction appear to lie the malignancy of cancer and a clue to the solution of its mystery. This property of perpetual multiplication definitely separated cancer from known infective diseases. Much experimental work had been done in treating malignant growths, but immunizing with serums did not justify the claims sometimes made for them, although in some cases they deprived the cells of the power of growth. The action of radium and radioactive solutions had been carefully studied. It was undoubtable that these sometimes influenced the growth and development of normal and tumor tissues, but there was no evidence yet obtained that radium emanations had any selective or special action on tumor tissues, while the amount of radio-active solutions necessary to produce any action on the tissues far exceeded the quantity that could be safely introduced into the body.

New Jersey Licentiates.—At a meeting of the State Board of Medical Examiners of New Jersey, held at Long Branch, July 5, the following candidates, who passed the State examination at Trenton, June 20-21, were duly licensed to practice medicine and surgery in New Jersey: Herman Bryden Allyn, Philadelphia; Pasquale Bellino, Newark; Albert Page Berg, Philadelphia; Joseph Albert Biello, Philadelphia; Theophilus Henry Boyesen, Egg Harbor City; James Breslin, Freehold; Frederick Norman Bunnell, Tom's River; Ralph Robert Charlesworth, Millville; Arthur Harley Coward, New Egypt; William Price Davis, Jr., Atlantic City; Samuel Ward Dodd, Newark; Joscelyn Joseph Emmens, Philadelphia; Arthur Edward Ewens, Atlantic City; John Eugene Fahy, Philadelphia; Abraham P. Fishman, Providence, R. I.; Collin Foulkrod, Philadelphia; Frank William George, Princeton, Mass.; Frederick Snyder Hammond, Wilmington, Del.; Ernest Rutherford Hoffman, Collingswood; Albert F. Jackson, Campgaw; Charles Higbee Jackson, Camden; Claude Perry Jones, Somerville, Mass.; Henry Benjamin Kessler, Newark; Ignaz Klein, Newark; George J. P. Koch, Paterson; Thomas Benjamin Lee, Camden; Chester Arthur Leigh, Burlington; Harry Elmer Lore, Cedarville; Margaret Mace, Anglesea; Richard Sanford Mallon, Paterson; Amos Jones Mander, Philadelphia; Harrison Stanford Martland, Newark; James Henry McCroskery, Union Hill; Joseph Searle McDede, South Orange; Joseph Zimmerman McDermott, Freehold; William Bernard McGlennon, Newark, Llewella Maria Merrow, Atlantic City; George Grant Mills, Philadelphia; Arthur Caradoc Morgan, Philadelphia; Samuel Alan Muta, Bridgeton; Daniel Jerome O'Brien, Deep River, Conn.; Thomas Aloysius O'Brien, Philadelphia; Clarence Rutherford O'Crowley, Newark; Jacob Lyon Rosenstein, Jersey City; Eugene Paul Schaefer, Newark; Julius Segal, Carmel; George Sigars Spence, Vineland; James Harris Underwood, Woodbury; Nelson Shelly Weinberger, Doylestown, Pa.; Edgar Lee West, Hamilton Square; Edward Clendenning White, Camden; Walter John Whitehouse, Jr., Pottsville, Pa.; Joseph J. G. Williams, Longport; William Walsh Wilson, New Brunswick; Alfred Woodhouse, Trenton. The following officers were elected: President, Dr. Edward Hill Baldwin, Newark; Secretary, Dr. E. L. B. Godfrey, Camden; Treasurer, Dr. Charles A. Groves, East Orange. The medical license of New Jersey will be indorsed by the following States: Maine, Vermont, Delaware, Virginia, Illinois, Michigan, Minnesota, Kansas, Colorado and others.

OBITUARY.

Dr. GEORGE J. A. AHERN, of No. 151 East Thirty-ninth Street, New York, former surgeon of St. Francis Hospital, died suddenly July 4, in that institution, from a

pulmonary hemorrhage. He was thirty-four years old. He leaves a widow and three married sisters residing in this city. He was a graduate of New York University Medical College and was formerly on the staff of physicians at the Manhattan Eye and Ear Hospital.

CORRESPONDENCE.

OUR LONDON LETTER.

(From Our Special Correspondent.)

LONDON, June 10.

THE PREVENTION OF PHYSICAL DEGENERATION—CAUSES OF MENTAL DEFICIENCY—SIR FREDERICK TREVES ON HIMSELF AND SOME OTHER THINGS—RETIREMENT OF A MEDICAL M.P.

PROPHETS of the Cassandra type have for some time been giving us the cheerful assurance that the British race is doomed to decay and extinction unless something is done to prevent its further deterioration. To many the alleged deterioration is not perceptible in the race as a whole; it is admitted by all, however, that the conditions of life in the slums of our large cities tend to produce physical degeneracy in their denizens. It has been said that a trueborn Londonor of the fourth generation is unknown. This is an exaggeration, but it embodies a truth of far-reaching importance. The British race is as strong as ever when it has the chance of growing to its normal standard. The rural population is, however, drifting more and more to the towns where the unwholesome environment, combined with drink and debauchery, in a few years wreck the stalwart countryman's constitution and leave their ineffaceable marks on his offspring. Unless this process can be checked there is a real danger that the manhood of the nation may in time be sapped. The doctrine expressed in the formula "Back to the land" has therefore a physiological as well as an economic application In the meantime a strenuous effort is about to be made to concentrate the scattered forces making for physical regeneration in a National League for Physical Education and Improvement. A meeting is to be held on June 28 at the Mansion House under the presidency of the Lord Mayor—the official *præsidium et dulce decus* of British philanthropy—at which the birth of the new League will be formally proclaimed. Its objects are stated to be:

1. The stimulating of public interest in the various societies which make the improvement of the physical condition of the people their special care.

2. The bringing into close association and, if possible, the federation of such societies, so that they may have increased strength, financial and otherwise.

3. The encouragement of, and the advising of, societies which find it difficult to hold their own under present conditions.

4. Assistance toward the starting of organizations for the benefit of physical health and well-being wherever they do not already exist, as, for instance, in remote districts.

The League, in short, aims at spreading knowledge of the laws of health and organizing a crusade against the causes of degeneration. Among the members of the medical profession who have consented to become vice-presidents of the League are Sir William Broadbent, Sir Thomas Barlow, Sir Frederick Treves, Sir Samuel Wilks, Sir John Burdon-Sanderson, Mr. John Tweedy, President of the Royal College of Surgeons of England; Sir William Turner, Principal of the University of Edinburgh, and late President of the General Medical Council; Sir Lauder Brunton and Sir Victor Horsley. The League will have the blessing of nearly the whole bench of Bishops, the Moderators of the Church of Scotland and of the Free Church, the Chief Rabbi, and Mr. Bramwell Booth. The luminaries of the law are also conspicuous in the list of vice-presidents, while science is represented by such men as Sir Norman Lockyer, Sir William Higgins, Sir Archibald Geikie, Sir Michael Foster and Sir William Ramsey. The leading spirit in the movement is Sir Lauder Brunton, whose views on one aspect of the question of physical degeneration are therefore of special interest. Speaking at a meeting of the Christian Social Union the other day he began with the comforting statement that there is a great deal of masculine energy and indomitable courage and steadfastness of purpose left in the Anglo-Saxon race; "it is for us, he said, "to make the most of these qualities, so that we may take our place among the nations." After referring to the fact that a committee which lately inquired into the matter had concluded that physical deterioration is a bogey, he went on to say that whatever opinions might be held on that point, there could be only one opinion as to the existence of physical inadequacy. No one could go to any large town without noticing men, women and children who were not fitly equipped for the struggle for life, but who were in the abyss and needed help. How, he asked, could such help be given? In a large number of cases parents are ignorant of what to do for the health of their children rather than wilfully careless. "We must," said Sir Lauder Brunton, "impress upon parents that the health of their children is in their keeping. But though parents must be mainly responsible for the health of their children, school teachers must realize that in training the brain the child's body must not be overlooked, and that opportunities must be given for physical recreation and physical training." It is a noble ideal that the League sets before itself. In the better rearing of the child lies the secret of healthy development. But there is one factor in the problem which is either lost sight of or purposely disregarded by our hygienic reformers, and that is the poverty of the parents. From that spring dirt, starvation and disease; in that, too, is engendered the viper-brood of drink and vice which poison human life at its source. The teaching of the laws of health may do something to lessen physical deterioration, but the only remedy that will really go to the root of the evil is the extinction of poverty. And for that we shall have to wait till the millennium.

Closely connected with physical deterioration is mental deficiency. A Royal Commission on the Care of the Feeble-Minded is now taking evidence on the subject. Sir James Crichton Browne, who is Lord Chancellor's Visitor in Lunacy, who appeared before it the other day, said there was reason to believe that thirty per cent. of the population were still living in poverty and were ill-housed, ill-clothed, and underfed—conditions which favored mental degeneration. Mental defects had, however, a much more complex causation than tuberculosis, and sanitary improvements had not reduced the prevalence of mental defects to the extent they had reduced tuberculosis. A large amount of mental defect was due to insufficient and improper feeding in infancy and childhood. Natural nursing had gone out of fashion, and many of the condensed milks and proprietary foods were unsuitable and harmful. Babies fed on them might look plump, but they were pale and flabby, and often suffered from rickets. But he believed that the effects of alcohol in the production of mental defects had been exaggerated. He did not think it played any part in the causation of more than fifteen per cent. of cases of idiocy

and feeble-mindedness. He said that the late Professor Laycock, of Edinburgh University, used to divide idiots into two classes—poverty idiots and luxury idiots. In the case of the latter the causes of mental degeneracy were indolence and self-indulgence through many generations and inter-marrying. The persons thus afflicted were called by Professor Laycock "spoon-bill" idiots, and he used to point out that they were the type represented in "Punch" as aristocratic noodles. He could not say that there were more cases of feeble-mindedness in the upper than the lower class, though among the former there was more inter-marriage. Incidentally Sir James Crichton Browne stated that he did not know a single case in which an inebriate had benefited by a stay in a "home." In some of these retreats he believed drinking went on. Moreover, the idle, loafing life led in these institutions must have a demoralizing effect. In the present state of the law there were a great many weak-minded people, including many who wasted their means, who could not be interfered with unless they showed themselves to be socially dangerous. Sir James Crichton Browne suggested, in regard to weak-minded persons who had been brought up in special schools, that after their training there they should be sent, not to their own homes, but to some place where they could be kept under observation. Weak-minded persons, with criminal and vicious tendencies, might, on the recommendation of the medical officer who had watched the case, be detained in a criminal observation home. Sir James said he knew a medical officer of a gaol who declared that one-third of the prisoners there detained showed signs of mental weakness.

Since he retired from the arena and ceased to raise Olympic dust in the race for professional victory, Sir Frederick Treves has not been idle. When he is not exercising his skill on some favored person to whom the King delights to do good vicariously, he is being interviewed by newspapers or making speeches. To a representative of *Cassel's Saturday Journal* he not long ago explained that he had given up his profession for the simple reason that there was too much to do. He went on to say: "Performing big operations every morning makes existence rather trying. I got tired of my duties; they bored me to death: so, after six and twenty years of practice, I retired. Not that my labors were breaking me down. Nothing would, I think, do that. I have no nervous system, not having had need of one, and I have never had to keep to my bed." Asked to give an account of one of his busy days, the distinguished surgeon said: "I was invariably downstairs at five o'clock. I breakfasted at half-past seven, and almost without exception there was an operation at nine. Then, right up till one o'clock, there were patients to see. After that I went out, and, having lunched in my carriage, devoted the afternoon to consultations. When did I get home? At all hours. This, as I have said, was a sort of existence of which anybody was liable to grow tired." Asked further as to the essential qualities needed for success in surgical work, Sir Frederick said: "The principal feature of success is good health. A surgeon must be strong; otherwise his temper suffers, and his judgment becomes faulty. He must always be fit—in the pink of condition—which is one of the reasons why whenever I had any spare moments I employed myself in swimming, boating, fencing, cycling. The position of a surgeon is one of vast responsibility, requiring extraordinary attention to detail. Not to fail, you must, if you are a surgeon, be alert, keen, perpetually on the *qui vive*. At any moment you may receive a telegram summoning you to some distant town, and unless you are fit you cannot respond to the demands that are made upon you." Sir Frederick Treves concluded the interview by saying that in his retirement he never had a minute to spare. And in point of fact he figures in the newspapers almost as often as a leading politician or a popular actor. One day he is addressing a teetotal meeting; the next he is singing the triumphs of modern surgery at a meeting of ladies interested in the Hospital for Women; another day he is telling the world that the future of the healing art is in the hands of the Japanese. His latest appearance, as far as I have been able to follow his "quick change" performances, was at a meeting of the National Health Society, last week, when he said that in matters appertaining to health the educated classes knew too much for their comfort. They dreaded germs as their ancestors dreaded ghosts. In the nursery the rattle was sterilized daily, and everything boiled, except baby. All the older people were on some highly specialized diet. On the other hand, the lower orders knew too little. They thought people were porous—as porous as blotting paper. They were very interested in eruptive fevers, eagerly watched for the eruption to "come out," and talked of driving it inside again. They had an extraordinary belief in meat, especially when red, and in port wine, because it was blood-colored, and therefore blood-making. Speaking with special reference to the work of the National Health Society, Sir Frederick said it would be well to teach women the actual physical capacity of a child's stomach and the desirability of being clean. Education would go far to abolish preventable diseases, such as anæmia, the diseases of malnutrition, acquired deformities, ill-health in women—and it was his experience that drinking among women came from ill-health, not from ill-morals. Treves's style of oratory, it will be seen, is breezy as becomes one whose love of seafaring led him to study navigation and obtain a master marine's certificate. He has, however, a tendency not uncommon among orators, to overstatement of his case. In his denunciations of alcohol, of which something was said in a previous letter, he, in the words of Lord Beaconsfield, became "intoxicated with the exuberance of his own verbosity" to such a degree as to come perilously near to talking nonsense. He is a good speaker, but as was said by the Emperor Augustus, of another overstrenuous orator, *sufflaminandus est*.

Dr. Robert Farquharson, who has sat in the House of Commons as the representative of West Aberdeenshire for a quarter of a century, has just announced his intention of not seeking re-election to a new Parliament. The reason is that his health has been failing for some time past, and he no longer feels himself equal to the strain of parliamentary life. His retirement will deprive the House of one of its most justly popular and respected members, and the medical profession of a trusted representative. He has played a very useful, if not a very conspicuous, part as a legislator. It was he who piloted the Public Health Act of Scotland safely into port through the treacherous cross currents of party strife; it was said at the time that he was the only member of the House who thoroughly understood that unweildy measure in all the intricacies of its innumerable clauses. Dr. Farquharson who is still a year short of seventy is the chief of the great Highland clan whose name he bears. His cousin, Farquharson of Invercauld, used to be known as the Queen's landlord, because he was the owner of Balmoral, Queen Victoria's favorite residence in Scotland; his brother, Joseph Farquharson, is a distinguished painter, whose speciality is Highland scenery. Robert Farquharson graduated at the University of Edinburgh, and began his professional life as Assistant Surgeon in the Coldstream Guards. After

eleven years' service he became Medical Officer to Rugby, the great school associated with the name of Dr. Arnold. Later he was appointed to the staff at St. Mary's Hospital; he lectured on materia medica, on which he wrote a little book which once had a great vogue among students. Then, suddenly, on the death of a relative he blossomed out into a Scottish laird, owning some 17,000 acres of land in a beautiful part of Aberdeenshire. He is a very familiar figure in London Society, and "gives away" countless brides at fashionable weddings. His walrus-like moustaches made him a favorite subject for the caricaturists of *Punch*. He is a man who has troops of friends and, I should think, not a single enemy.

SOCIETY PROCEEDINGS.

THE SOCIETY FOR EXPERIMENTAL BIOLOGY AND MEDICINE.[1]

Eleventh Regular Meeting, held April 19, 1905.

The President, Edmund B. Wilson, in the Chair.

Members Present.—Adler, Auer, Calkins, Emerson, Gies, Hatcher, Jackson, Lee, Levene, Levin, Lusk, Meltzer, Morgan, Murlin, Richards, Salant, Sherman, Torrey, Wallace, Wilson, Wolf, Yatsu.

Members Elected.—Harlow Brooks, W. B. Cannon, A. J. Carlson, R. G. Harrison, A. P. Mathews, G. H. Parker, A. E. Taylor.

ABSTRACTS OF REPORTS OF ORIGINAL INVESTIGATIONS.

The Relation Between Normal and Abnormal Development of the Frog's Egg.—By T. H. Morgan. The method of development of the frog's egg may be changed by a number of external agents. If the eggs are revolved at the rate of 180 revolutions per minute; if they are put into salt-solutions of definite strengths; if they are subjected to a low or to a high temperature; if they are deprived of sufficient oxygen, or surrounded by carbon dioxide in solution; if they are placed on wet filter paper instead of developing under water—in any of these ways abnormal embryos result.

An examination of the effects of these external agents brings out two points of especial interest. First, that the effects are not gradual, *i.e.*, corresponding in degree to the increasing strength of the agent employed, but that no effects appear up to a certain point, and then suddenly the agent begins to act. Increasing the strength of the agents above this point may, for a small range, increase the effect, but this occurs within extraordinarily narrow limits compared with the lower range of non-action. The most plausible explanation of this mode of behavior in most of the cases is as follows: The agents act by coagulating certain parts of the egg, thereby preventing their further development. Other parts of the eggs that are made up of different colloids or of different concentration of colloids remain unaffected, and proceed to carry out their development as far as the presence of the injured region allows.

The second point was the one that the author spoke of especially. Despite the great diversity in the form of the abnormal embryos most of them may be reduced to modifications of the same type. For example, in many cases the dark cells of the upper hemisphere do not grow down over the lower hemisphere to produce there the embryo, but, remaining at the top of the egg, partially constrict off from the yolk cells at, or even above the equator of the egg. Out of these dark cells the abnormal embryo develops usually in the form of a ring. Sometimes one side only of the ring develops and a half embryo appears; sometimes only the anterior end of the ring develops and an anterior embryo appears (often more or less "open"), etc.

The author especially called attention to the fact that the abnormal embryo develops in the material of the upper hemisphere, while the normal embryo develops over the lower hemisphere. Two interpretations of the difference seem possible. Either the material is totipotent and an embryo may develop anywhere in the egg, appearing in the less injured regions or the material for normal and abnormal development is the same and becomes carried downward during the early stage of normal development from the upper into the lower hemisphere.

The author tested these alternatives in two ways. In the first place he removed, with a needle, the two anterior, or the two posterior, or even all four of the upper blastomeres at the eight-cell stage. The results showed that when the two upper anterior blastomeres are removed the head end of the embryo is defective; when the two upper posterior blastomeres are removed the posterior end sometimes shows defects. When all four of the upper blastomeres are removed no embryo develops, although the blastoporic rim may appear near the equator of the egg, the gastulation process may begin and the differentiation of the germ layers take place to a certain extent.

The author concluded from these results that some at least of the material that goes to form the embryo lies at first high up in the upper hemisphere of the egg. In the light of these conclusions it became necessary to examine once more the early development, especially the pregastrula stages; for, despite the fact that the frog has been a classical object of study with embryologists for over a hundred years, no one has suspected that the embryo-forming material lies in the upper hemisphere and is transported to the lower hemisphere *before* the lips of the blastopore have appeared.

Briefly, the author's examination showed that throughout the early period of segmentation the material of the hemisphere gets pushed far out to the sides of the egg. This is brought about largely by the development of the enormous segmentation cavity. During the later cleavage period the yolk cells of the lower hemisphere push upwards into the segmentation cavity, almost obliterating it. This upward movement of the cells in the interior is compensated for by the moving downward below the equator of the outer layers of the egg. In this way the embryo-forming material is carried into the lower hemisphere. Along its edge the lips of the blastopore develop. The dorsal, lateral and ventral lips roll over the yolk (or more accurately the yolk draws in beneath their advancing lips) and the dorsal organs of the embryo (the embryo in a narrower sense) appear over the lower, or yolk hemisphere of the egg.

Rejuvenescence in Protozoa.—By Gary N. Calkins. The process of conjugation in protozoa involves either temporary or permanent union of two individuals. During this union there is a fusion of

[1] Proceedings reported by the Secretary, William J. Gies, Ph.D., of New York. The authors of the reports have written the abstracts. The Secretary has made a few abbreviations and minor changes.

nuclear material from both organisms, resulting in the formation of new cleavage nuclei in each exconjugant. The process is directly comparable with fertilization of an egg by a spermatozoon and the biological significance of the phenomena involved is probably identical in all living things.

Since 1876 it has been generally assumed that one effect of conjugation is rejuvenescence or renewal of vitality in both of the exconjugants. This assumption has never been submitted to experimental proof. In his Paramœcium work, begun in 1901, the author almost had the proof but allowed the opportunity for obtaining it to slip through his fingers without realizing its importance at the time. The author's object in bringing this up at the present time is to announce that on the last day of February, 1905, he started a new series of experiments with Paramœcium consisting of three different lines at present in about the fortieth generation after conjugation, mainly for the purpose of completing his earlier work.

Another point of general biological importance will also be investigated. In his original experiments the author found strong evidence that the old view that both exconjugants are rejuvenated is erroneous. In 20 pairs which were cultivated after separating from conjugation, one individual of each pair invariably outlived the other, thus indicating an incipient fertilization like that in metazoa. This phenomenon will be given careful study in the experiments now under way.

Temperature and Muscle Fatigue.—By Frederic S. Lee. It has been pointed out previously by the author and others that the contraction process of the muscles of cold-blooded animals in the course of fatigue becomes greatly slowed, while those of warm-blooded animals show no such phenomenon. Lohmann has recently claimed that a cold-blooded muscle on being heated to a mammalian temperature shows a course of fatigue similar to that of mammalian muscle, and, on the other hand, that a warm-blooded muscle on being cooled fatigues like the muscles of cold-blooded animals at a similar temperature. From these supposed effects he concludes that in the matter of fatigue there is no real physiological difference between the two groups of muscle.

The author has investigated the question by very careful methods in a considerable variety of animals and has not been able to confirm Lohmann's conclusions. The muscles of the frog and the turtle show their characteristic method of fatigue whatever the temperature. The muscles of warm-blooded animals, on being cooled and then fatigued, show either no slowing of the contraction process or only a slight slowing. The latter seems to be most pronounced in the rodents, namely, the rabbit, the mouse, and the rat.

On Intra-Ureteral Pressure and its Relation to the Peristaltic Movements of the Ureter, with Demonstrations.—By Daniel R. Lucas (by invitation). By means of a cannula placed in the ureter, and retained without ligatures, and which did not materially interfere with the peristalsis of the ureter, the intra-ureteral pressure and its relation to the peristaltic movements of the ureter were ascertained.

In nine experiments on animals anesthetized with morphine and atropine, the pressure in the ureter arose only to a minute degree, the average being a negative pressure, more pronounced under the influence of diuretics. In five, in which chloroform was used, the pressure was always positive, the irritability and contractility of the ureter were noticeably diminished. In six, under ether, the ureter was noted to be irritable and contractile three hours after the anesthesia was commenced; the pressure was low. In four, in which ether followed the administration of chloroform, ether showed a stimulating effect on the peristalsis, running the pressure rapidly down. In three, in which morphine and atropine, chloroform and ether were successively tried during the same experiment, the specific effect of each, as above noted, was again observed. In an animal in which anesthesia was produced by decerebration, irritability and contractility of the ureter muscle were noted; the pressure was low, tending to negative on stimulating the ureter distal to the cannula. In one animal anesthetized with cocaine by the lumbar puncture method, the same results as with morphine were obtained. In two artificially constructed systems, which were demonstrated, phenomena analogous to those observed in the animals were produced and the causes indicated.

The experiments seem to justify the following deductions:

(1) A suction normally follows the peristaltic wave of the ureter; at the same time a force is exerted on the fluid in front of the wave.

(2) When the ureter is normally acting, the pressure in the pelvis of the kidney remains constantly negative, this condition obtaining through the anatomical arrangement of the pelvis, which prevents it from collapsing under negative pressure.

(3) Under the influence of chloroform, or conditions which retard muscular tone and activity, the pressure in the ureter becomes greater than that prevailing in the bladder.

(4) It seems obvious, then, that the ureter functions as an active agent in the formation of urine. Sollman has shown in his perfusion experiments on excised kidneys that the formation of urine is largely, though, of course, by no means, wholly a filtration process.

(5) Ether anesthesia does not cause a cessation of the peristaltic movements of the ureter, but because of its suppressing action on the urinary secretion, the curves were not recorded.

(6) The ureter remains rhythmically contractile when excised and placed in warm physiological salt solution, or for some time after the death of the animal, when left *in situ*. Therefore contractility is not dependent on pressure.

(7) An increased flow of urine calls forth a more efficient peristalsis, and therefore does not result in an increased pressure.

(8) The force of the peristaltic wave was seen to raise a column of water of considerable height.

(9) When sufficient force is exerted by the intrinsic pressure, to overcome the peristaltic contractions, the urine is forced back into the uriniferous tubules, and accurate communication is attained with the vascular supply of the kidney. Consequently, the blood pressure conditions can be accurately transmitted to a recording instrument. The question then arises, why use an oncometer to obtain records of blood pressure conditions in the kidney?

(10) May not the diuretic effect which is noted after administration of such drugs as mercury, for example, be attributed, in part, at least, to the increased peristalsis of the ureter, causing, as it does, an increased negative pressure, and, therefore, an increased filtration of urine?

Further Observations Upon the Phosphorized Fats in Extracts of the Kidney.—By Edward K. Dunham. (Presented by Phoebus A. Levene.) Last winter, at a meeting of the society, the author reported observations showing that extracts from dried kidneys, obtained with the Rosenfeld alcohol-chloroform method, contained from ⅓ to ⅔ of their weights of lecithins. In the *Arch. f. Exp. Path. u. Pharm.*, Vol. 52, p. 173, Rubow, of Copenhagen, reports similar results of more extended studies, printed in Danish some months earlier.

During the last few months the author has learned that it is not necessary to boil with absolute alcohol and extract with chloroform in order to obtain the large quantities of extract yielded by the Rosenfeld method. Repeated extraction of the fresh, undried organ with 85 per cent. alcohol at 45° C. will accomplish practically the same result. When making these extracts, it was found that, upon cooling, the alcoholic solutions yielded a precipitate from which a substance resembling the protagon of Liebreich could be obtained. It is to this substance that the author directs attention in this report. The yield is from about 0.14 per cent. to 0.20 per cent. of the fresh organ, or from about 0.6 per cent. to 1.0 per cent. of the dried kidney.

In order to obtain sufficient material for analysis, the author employed the method used by Cramer, *Journal of Physiology*, Vol. XXXI, in preparing protagon from the brain. The method employed was, in brief, as follows: The minced kidney, freed from obvious fat, was treated with 5 per cent. sodium sulfate solution at 85° to 90° C., twice, the filtrates discarded and the coagulum extracted, first with 95 per cent. and then repeatedly with 85 per cent. alcohol, at the boiling point, and the extracts filtered from the coagulum in a hot water funnel. The filtrates were cooled to from 0° to 5° C.; the precipitate was filtered out and purified by boiling with absolute alcohol, diluting the filtrate with water to make 85 per cent. alcohol, chilling, filtering, treating the precipitate repeatedly with cold ether to remove cholesterin, dissolving in hot chloroform, reprecipitating by chilling, filtering and expressing all possible traces of chloroform. The resulting product is a white, somewhat crystalline substance, freely soluble in warm 85 per cent. alcohol or chloroform, but reprecipitating upon cooling. It contains fatty acids, phosphorus, methyl, sulphur, and, upon cleavage with dilute sulphuric or hydrochloric acid, yields a reducing substance from which an osazone may be prepared.

For purposes of comparison a similar substance was prepared from beef brains by employing the same method.

Analyses of these products, two from different lots of beef kidneys and one from beef brain, were kindly made for the author by Dr. P. A. Levene, with the following percentage results:

	From Beef Kidney.		From Beef Brain.	Cramer's Figures for Protagon from Beef Brain.
	One Per Cent.	Two Per Cent.	Per Cent.	Per Cent.
C	65.61	65.55	65.76	66.25—66.42
H	11.00	11.09	10.66	10.82—11.07
N	3.17—3.15	3.24—3.26	2.51	2.29
P	2.06	2.19	0.97	1.04
S	0.82		1.33	0.71

The substance from the kidney contains distinctly more nitrogen and phosphorus than that from the brain, and that obtained by the author from the brain contained considerably more sulfur than that prepared by Cramer; the cleavage products, however, show that all of these substances belong in the same group. The nature of the glucoside which may be obtained from these substances can only be determined by using larger quantities than have as yet been obtained, and the author hopes to report results in this direction in the near future.

Comparative Physiological Action of Salts of Neodymium, Praeseodymium and Lanthanum.—By B. J. Dryfuss and C. G. L. Wolf. The experiments were undertaken to investigate the comparative physiological action of three elements which are of equal valency, and of approximately the same molecular weight, and whose chemical properties are closely related.

The experiments were carried out in vitro and on unicellular organisms, bacteria and infusoria, frogs, pigeons, rats and guinea-pigs. The solutions used were the chlorides, isotonic with 0.6 per cent. sodium chloride. In one case the propionate was used without any marked difference in the result being observed.

The chlorides coagulate egg and serum albumin, but neither the purified albumoses from Witte's peptone, nor peptone are precipitated.

Dilute solutions delay the growth of bacteria and eventually kill. The solutions are not very toxic to spores. Opalina, paramoecia and vorticellæ are killed quickly equivalent solutions of the chlorides acting in the following order of strength: Neodymium, præseodymium and lanthanum.

In frogs voluntary and involuntary muscle are quickly put out of action. This is particularly the case with perfused muscle. The solutions act in the same order as with unicellular organisms. Intravenous injection causes almost instant death, due to multiple embolism.

Attempted chronic poisoning was unsatisfactory. The solutions were introduced both subcutaneously and intraperitoneally. Some of the animals died with ill-defined symptoms. Others remained well, except for areas of induration at the seat of injection. Experiments with oral administration and on elimination will be conducted.

As all the solutions, owing to hydrolysis, are acid in reaction, the authors are inclined to attribute a large share of the acute effects to the acid present. The salts range themselves in their toxicity according to their molecular weights.

The Influence of Bile Upon Blood-Pressure.—By S. J. Meltzer and William Salant. There have not been very many studies regarding the influence of bile upon blood-pressure, and among these the statements are conflicting. Thus Traube, who was the first to study it upon the kymograph, states that the intravenous injection of bile salts causes a considerable fall of the blood-pressure, while Edmunds states in a recent report from Halliburton's laboratory that the effect is an insignificant one.

Nearly all of the investigators of this question within the last fifty years have employed bile salts in their experiments. The results of the authors' experiments were derived from intravenous injections of filtered ox bile into rabbits. Of the several reasons for employing bile and not its salts one should be mentioned: it is the belief of the authors that for biological phenomena we have as yet no right to assume that the sum of the known parts is equal to the whole.

In these experiments all degrees of effects have been observed from an insignificant one to a considerable and even a fatal fall of blood-pressure. But

these different degrees could be produced at will. Besides the quantity and the concentration of the bile it was found that the rate at which it is introduced into the circulation is the most effective factor in the result. A quantity of bile of a given concentration, which, when injected slowly, would cause only an insignificant depression, brought about a tremendous fall of the blood-pressure when injected rapidly. By injecting rapidly normal salt solution the fact has been established that neither the mechanical effect of the rapid injection nor the temperature of the injected fluid can have anything to do with the pronounced effect which is invariably produced by the rapid injections of bile. Although the rapidity of the injection was known to be a factor in the results produced by injections of other substances, it was never taken into consideration in the studies of the effects of bile. Thus, there are also conflicting statements regarding the immediate fatal effect of intravenous injections of bile. These contradictions find their satisfactory explanation in variations in the rate of injection employed in different experiments. Thus, a quantity of bile which, when injected slowly, would produce hardly any symptom, causes death within two minutes if injected rapidly.

As to the cause of the fall in pressure or of the fatal outcome it is generally assumed that it is due to the effect of the bile upon the heart, although opinions differ as to whether it is the heart muscle or the heart ganglia which present the points of attack. As to the manner of the injury Traube, Leyden and other investigators are of the opinion that it is caused by malnutrition of the heart due to the hemolytic effect of the bile. This is *a priori* improbable since the fall of the blood-pressure sets in immediately at the beginning of the injection and the return to normal begins as soon as the injection is stopped. The authors have, however, disproved this theory by direct experiment. On quickly injecting bile the blood-pressure fell rapidly, and the animal died in less than two minutes. The blood which was obtained immediately from the right ventricle did not show a trace of hemolysis.

Autopsies of rabbits killed rapidly in the above-mentioned manner showed in most cases nothing but dilated, flabby hearts. The failure of the heart can be caused either by the bile affecting anatomically the heart muscles or the ganglia, or by a functional process, by inhibiting the heart's action. It is known that bile produces structural changes in muscles and nerve fibers and nerve cells, but it is hardly conceivable that the structural changes could be induced so rapidly, and it is still less conceivable that structural restitution would occur with such rapidity as has been observed to take place in the return of the blood-pressure. It is, therefore, more probable that the bile exerts an inhibitory effect upon the heart.

In this connection the following experiments are of interest:

(1) The inhibitory effects of a stimulation of the peripheral end of the vagus not only did not diminish during an effective injection of bile, but in a few instances were distinctly improved.

(2) The inhibitory effect of the vagus was manifestly unimpaired shortly before the death of the animal when the blood-pressure was not more than a few millimeters of mercury and the heart beats were scarcely perceptible.

A Report of Feeding and Injection Experiments on Dogs after the Establishment of the Eck Fistula.—By P. B. Hawk. (Presented by A. N. Richards.) The fistulous opening between the portal vein and the inferior vena cava was made in six dogs by Dr. J. E. Sweet. Observations were made as to the behavior of the animals when fed on a diet of proteid food. One typical experiment may be summarized as follows: During eleven days on a mixed diet, there were no abnormal symptoms. On the four succeeding days beef meal and milk were fed, with the result that on the fourth day pronounced ataxia, loss of sight and hearing, complete anesthesia and catalepsy were observed, recovery occurring on the next day. After fasting for twenty-four hours, the animal was placed on a diet of fresh, lean beef. In five days a recurrence of the above symptoms was noted. The death of the animal occurred on the fifty-ninth day of the experiment—after the dog had undergone a loss of 42 per cent. of his weight. Autopsy showed a fistulous opening 2 c.m. in length and no collateral circulation. In other cases the symptoms described occurred only after the addition of Liebig's extract to the meat diet. The administration to normal dogs of sodium carbamate, either by mouth or by intravenous injection, gave rise to none of the symptoms observed by Pawlow and associates.

On Chemical Fertilization.—By Jacques Loeb (Presented by William J. Gies.) 1. In two previous publications the author mentioned the fact that by applying two different methods of treatment to the unfertilized egg of the sea urchin, this egg could be caused to develop in a way which resembled in all its essential features the development of the eggs fertilized with sperm. These two methods consisted first, in putting the eggs for about two hours in hypertonic sea water (the method used in the early experiments), and second, in exposing the eggs for from one to two minutes to sea water to which a certain amount of acetic acid or formic acid had been added. When the old method alone was used the eggs did not form a membrane, nor did the larvæ rise to the surface. When the acid treatment alone was used, the eggs formed a membrane, and after about six hours divided into from two to six cells, but then died. When the eggs were exposed to the acid for only a short time, *e.g.*, for three-quarters of a minute, not all the eggs formed a membrane when put back into normal sea water; and in this case only those divided into two or four cells and subsequently died within twenty hours, which had formed a membrane, while those eggs which had not been exposed long enough to the acid to form a membrane neither segmented nor died. If both methods of treatment were, however, combined, those eggs which had formed a membrane developed at about the same rate as the eggs fertilized with sperm. A certain percentage of these eggs rose to the surface of the water in the usual way, while the eggs which had not formed a membrane either did not develop at all, or developed in the somewhat abnormal and slow way characteristic of the treatment by hypertonic sea water alone.

The reader will notice that the eggs were submitted first for about two hours to the hypertonic sea water, and then exposed to the acid. When the order was reversed, and the eggs were exposed to the acid first and afterward to the hypertonic sea water for about two hours, most of them died without developing. This seemed rather strange in view of the fact that in the case of sperm fertilization the membrane formation is the first act in the series of events, while in the above-mentioned experiments it was the last. It occurred to the author that by shortening the time of exposure of the egg to the hypertonic sea water, he might also accomplish the last

postulate of a complete imitation of the process of fertilization by physicochemical means, namely, to get the order of events identical in both cases. This idea proved correct. It was found that when the unfertilized eggs were exposed for about one to two minutes to 50 c.c. of sea water to which about 3 c.c. N/10 acetic acid were added, the majority of the eggs formed the membrane characteristic of the entrance of a spermatozoon. If these eggs were afterwards exposed for from thirty to forty minutes to 100 c.c. of sea water to which 14 or 15 c.c. of a 2½N solution of NaCl were added, those of the eggs which had formed membranes developed into swimming larvæ that rose to the surface. The author has raised these larvæ and they develop into perfect plutei as fast as the larvæ of eggs fertilized with sperm.

It is very remarkable that when the order is reversed and the eggs are put first into the hypertonic sea water for about forty minutes, and then into the acidulated sea water for about one or two minutes, not a single larva is formed, and the eggs behave, on the whole, as if they had been exposed to the acid alone. If it is desired to put the eggs into the hypertonic sea water first and then expose them to the acid, it is necessary to expose them to the hypertonic sea water at least an hour and a half in order to obtain larvæ. On the other hand, if the eggs are treated with acid first and then exposed to the hypertonic sea water for from an hour and a half to two hours, most of the eggs die in the early stages of development.

It may also be mentioned in this connection that if eggs are fertilized with sperm first and then exposed to the hypertonic sea water of the above-mentioned concentration for about two hours, many more eggs die without reaching the larval stage than when the order is reversed. It is therefore obvious that the process of membrane formation caused by the spermatozoon modifies the sensitiveness of the egg to the hypertonic sea water in the same sense as the process of membrane formation caused by the acetic acid. If eggs are fertilized with sperm and then exposed to the hypertonic sea water for from about thirty to forty minutes, their development becomes almost identical with that of the unfertilized eggs treated first with acid and then exposed to the hypertonic sea water for the same period of time. The majority of these eggs segment and develop in a normal way.

2. The question arises as to how far the division of labor between the two agencies used in these experiments goes. Does the treatment with acid cause only the formation of the membrane, or does it also set the internal mechanism of nuclear and cell division into motion? And what is the rôle of the treatment with hypertonic sea water? From the author's earlier experiments he had expected that the latter was required to cause the internal changes necessary for karyokinesis. The direct observation, however, of the eggs treated in the above-mentioned way with acetic acid, shows that the acid treatment causes the formation not only of the membrane, but also, in due time, of the karyokinetic spindle, while the eggs exposed for only thirty or forty minutes to the hypertonic sea water do not show any karyokinetic changes, or, in fact, changes of any kind. It is a striking fact that the spindle formation which can be observed in the living egg of *Strongylocentrotus* seems to be identical in the cases of the fertilized egg and the unfertilized egg treated with acetic acid in the above-mentioned manner. The rôle which the subsequent treatment with the hypertonic sea water for from thirty to forty minutes seems to play is, in the first place, the acceleration of the process of segmentation. When the eggs are treated first with acid, and then for about thirty or forty minutes with hypertonic sea water, they begin to segment, at a temperature of about 19° C., in from an hour to an hour and ten minutes after they had been removed from the hypertonic sea water. After this they go on segmenting at the rate and usually in the manner characteristic of the fertilized egg. The eggs treated with the acetic acid alone, after having formed a membrane, do not begin to segment for about five or six hours (if they segment at all), and they do not develop beyond the four or eight-cell stage, dying as a rule within twenty hours. The treatment with hypertonic sea water, therefore, first accelerates the mechanism of cell division originated by the acid treatment, and second, indirectly through or in addition to this acceleration, increases the vitality or prolongs the life of the egg.

It is not yet possible to say how the acid brings about its effects. Several years ago the author ventured the suggestion that the process of membrane formation was due to coagulation. The author's recent experiments, however, contradict such an assertion, inasmuch as the membrane formation never occurs while the eggs are in the acidulated sea water of the above-mentioned concentration, but only after they are taken out and put back into normal sea water. If the process of membrane formation were due to coagulation by acid, it should occur while the eggs are in the acidulated sea water.

The author considers it possible (but far from proved) that the membrane formation by the spermatozoon and possibly the subsequent process of karyokinesis are due to the transitory action of an acid carried by the spermatozoon into the egg or produced transitorily by the spermatozoon in the egg; and that, in addition, the spermatozoon carries a second agency or substance into the egg which supplies some of the conditions produced in the above experiments by the brief treatment with the hypertonic sea water.

COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Stated Meeting, held March 1, 1905.

The President, Arthur V. Meigs, M.D., in the Chair.

Gall-Stone Obstruction of the Bowel.—Dr. Alfred C. Wood reported a case of a woman, aged fifty-eight years, who was admitted to the University Hospital for obstruction of the bowel of five days' duration, pain in the abdomen and vomiting. This was preceded by diarrhea lasting one week. For three months prior to this the patient had alternating periods of constipation and diarrhea lasting three or four days. The only other illness having any possible connection with the case occurred eight months before her admission to the hospital. At this time the patient complained of pain in the chest, the attack being called pleurisy. All purgatives administered by the mouth were promptly vomited, and enemata were ineffectual. An operation was performed for the relief of the obstruction, and a gall-stone was found completely filling the lumen of the ileum about six inches from the ileocecal valve. This was removed by incising the bowel and the wound closed with Lembert sutures. As the stone was faceted at either end an examination was made to determine if any others remained in the body. When the hand was passed through the abdominal incision to the region of

the gall-bladder another calculus could be felt in a mass of adhesions. The first incision was then closed with sutures, and a second made over the region of the gall-bladder. In the center of a mass uniting the pylorus, liver, gall-bladder and ducts another stone was found and removed. This wound was drained with gauze. The patient made a good recovery, being able to leave the hospital six weeks after the operation. The wound had closed one week previously.

Dr. J. Allison Scott reported the removal of a gall-stone, 2 inches by 1 inch, from the duodenum, with a suppurative condition for 6 inches or 8 inches on either side in the case of a woman over sixty years of age. The bowel was resected and the woman died. He regards the intermittent attacks of pain as having important diagnostic significance. He has found in the literature reports of two cases of aged women whose gall-stones had been passed at the administration of half a pound of metallic mercury.

Dr. John B. Roberts referred to a case in which he had removed a large intestinal calculus 2½ inches long from a woman who had been suffering many years with the symptoms presented in Dr. Wood's case. There were evidences of old adhesions in the region of the liver, and the stone was covered with intestinal concretions. In the case of another patient a stone 1½ inches long was passed after an attack of severe pain.

The Gardner's Spade Deformity and the Silver Fork Deformity in Fractures of the Carpal End of the Radius.—Dr. John B. Roberts said that these lesions continue to be badly treated by a great number of practitioners, and that it seems impossible to convince the profession that restitution of the normal concavity of the palmar surface of the lower part of the radius is essential for comfortable convalescence and perfect cure. This must be accomplished, even if great force is required to disentangle the fragments and thrust the lower piece into its normal relation with the upper. The so-called "silver-fork deformity" of the fracture, with displacement of the carpal fragment backward, he said, must be absolutely overcome before the fragments may be assumed to have been properly coapted. Fracture in the same part of the radius with displacement in the opposite direction, namely, forward, is frequently unrecognized, and is therefore imperfectly reduced. In this fracture, the general deformity, which Dr. Roberts calls the "Gardener's Spade Deformity," is very characteristic. It is very different from the "silver-fork deformity" of the fracture with backward displacement of the carpal piece. The planes of the forearm and hand are related to each other almost exactly as are the planes of the handle and blade of the gardener's spade. In both lesions the styloid process of the radius is apt to be carried upward toward the elbow. As a result, an imaginary line joining the ulnar and radial styloid processes crosses the axis of the forearm at nearly a right angle or with the radial end nearer the elbow than the ulnar end. In the normal arm this interstyloid line is farther from the elbow on the radial than on the ulnar side. The ulnar head is very prominent at the back of the wrist in fracture with forward displacement; but not so in the break with backward displacement. In both forms of injury, however, this ulnar head may be very prominent at the ulnar edge of the wrist; because the shortening of the broken radius may give a displacement of the hand and carpus toward the radial side of the limb. Examination with the X-ray Dr. Roberts believes to be of aid in diagnosis, though usually it is not needed. The treatment of both fractures, he said, is easy, if the doctor will only use force enough to disentangle the carpal and compel it to assume its normal position. A light, straight splint on the dorsum of the forearm and hand, or a convex splint on the palmar surface is usually the proper retentive dressing after reduction has been thoroughly accomplished.

Dr. Alfred C. Wood agreed fully with Dr. Roberts that the fracture under discussion is one of the most badly treated of all fractures. He believes that in the large majority of cases the shaft is impacted in the lower fragment. He approves of giving an anesthetic to secure reduction when there is much deformity.

Dr. Frank Woodbury referred to the inability at first to give a true prognosis owing to the possibility of comminution of the lower fragment and of the presence of synovitis. He called attention to the recommendation of Dr. Thomas G. Morton to make frequent examinations of fractures, especially of the radius, and the application of hot douching and massage. In the cases he has treated he has not made special effort to reduce the fracture completely at the beginning, but has relied on the later manipulations and has had satisfactory results.

NORTHWEST MEDICAL SOCIETY OF PHILADELPHIA.

Stated Meeting, March 6, 1905.

The President, Arthur P. Hitchens, M.D., in the Chair.

SYMPOSIUM ON INFLUENZA.

Etiology and Diagnosis.—The etiology and diagnosis was read by Dr. G. Morton Illman, who stated that the disease was of very ancient record, being mentioned by Hippocrates, as far back as 400 B.C., and particularly referred to the epidemics of 1847 and 1889-1890. He stated that it is generally defined as an acute infectious communicable disease, characterized by fever and catarrhal irritation of the mucous tracts, and contrasted the theory of Pfeiffer who regarded it as due to a bacillus with others, who felt it was due to a toxemia, and expressed the belief that the latter was the result of the bacillus rather than the cause of the infection. He described the bacillus and stated it as found chiefly in the nasal discharge and sputum. He referred to the fact that the disease in many instances extended over a considerable portion of country, and believed that the communicability was due to an infection, in many instances accentuated by a predisposed system, such as general debility, anemia, tonsillitis, and chronic catarrhal condition of the gastro-intestinal and upper respiratory tract. He stated age and sex played but little part in the condition, the period of incubation is uncertain and but little, if any immunity is afforded by a previous attack, but general conditions, such as climate, heating and ventilation are important factors. The diagnosis, he stated, was not difficult during epidemics, but at other times it was very often confounded with an acute febrile bronchitis, coated tongue, headache, pain in the back, fever, chill, vomiting, vertigo and malaise being symptoms characteristic of many conditions, such as typhoid fever, rheumatism, malaria, and tonsillitis. The writer then distinguished between each of these conditions, and believed that accuracy could probably best be arrived at by a process of exclusion, although the finding of the bacillus is the surest, its staining and isolation is so difficult that it is not always practicable.

Influenza Complicating the Ear and Upper Air Passages.—This was Dr. William Hitschler's paper, and was read by Dr. Butler. He considered first its relation to the ear, and stated that it might affect

either the inner ear of the diseases of which little is known, and to which influenza adds no distinct characteristics, or the middle ear, involving either the drum-membrane alone or the entire middle ear, in which it differs from the ordinary otitis media in that in the early stages of the conditon there is a marked tendency to hemorrhage, which may be observed as punctate or diffuse ecchymoses on the tympanic membrane or as bloody vesicles raised from its surface, sometimes extending beyond the confines of the membrane itself, and involving the posterior-superior wall of the external auditory meatus. The pain is more severe and is more likely to be present on pressure over the mastoid, and the symptoms of tinnitus, deafness and discharge are intensified. The mastoid is much more likely to be involved than in other conditions, and the external attic is often the subject of purulent inflammation. The diagnosis between this condition and severe simple acute inflammation is very difficult, the prognosis is not as good, and the tendency to chronicity greater than in the latter. In the upper air passages, in addition to the usual catarrhal signs, there are frequently whitish-gray patches due to necrosis on the larynx and trachea. Hemorrhage, in the shape of nose-bleed or hemorrhagic laryngitis, edema of the larynx and pharynx and abscesses of the larynx and thyroid gland have also been observed. The recurrent laryngeal nerve is frequently affected and paresis of the soft palate are among the nervous symptoms. He referred to the tendency to sinus disease in these cases, and also referred to the fact that many of the cases get well without, and many are assisted by appropriate treatment, still there are a certain number which result either in chronic sinusitis, or a transmission of the infective process to the orbital or cranial cavities, sometimes resulting fatally, such as fatal meningitis caused by an acute empyema of an accessory sinus, and too often the etiology is unsuspected, and are more likely to occur in acute exacerbations of a chronic sinusitis brought about by some infective process, such as influenza.

Prognosis and Treatment.—This was discussed by Dr. Samuel Wolfe, who stated the prognosis was almost invariably favorable to life, if the patient had none of the senile debilities, and no complications arose. He stated that the prognosis must be considered (1) in relation to life, and (2) as to the liability to complications, on account of the fine field for infection, among the prominent being pneumonia, endocarditis, pericarditis, pleurisy and meningitis. He believed the season of the year had much to do with the complications, winter being particularly favorable to pulmonary involvment, and the summer and fall to gastro-intestinal involvment. He stated that each epidemic was liable to have peculiar complications, and believed that the individuality of the patient and management of the case, as well as the sequelæ, had much to do with the duration of the attack. Among the complications following the condition which he considered in detail were influenza pneumonia, catarrhal bronchitis, etc., and the neurotic affections, such as neuralgia, hysteria, and hypochondriasis. He believed that persons who had once had the disease were more liable to a second attack, and that the treatment should be directed (1) to the fever; (2) to the pain; (3) to the respiratory symptoms; (4) to the gastro-intestinal and nervous smyptoms.

Dr. Lewis S. Somers referred to the remarkable increase in the number of operations for conditions of the accessory sinuses during the last decade, which he felt due partly to the development of surgery, but in a large measure to the increase of morbid conditions thereof, brought about by the epidemics of influenza. He stated that this winter he had seen about 15 to 18 cases of frontal sinus involvement, while in the last three or four years involvement of the maxillary antrum had seemed to be the prevailing condition. He referred to the fact that complications of the upper respiratory tract were comparatively rare in those cases who went to bed immediately upon the onset of the condition. He expressed the belief that in many instances the severe headaches and trifacial neuralgias, following influenza, were the result of catarrhal condition of the accessory sinuses, which theory was borne out by the fact that local treatment of these regions would often remove the trouble. He did not view the hemorrhagic form of otitis as peculiarly characteristic of influenza in Philadelphia, and furthermore felt that in many instances abnormal conditions of the sinuses were induced by improper douching of the nose.

Dr. Swithin Chandler referred to the fact that he had observed a great many women with diseases of the tubes, who stated that it had started with influenza, and while he had viewed these at first as due to a weakened constitution, giving a chance to a latent germ to take effect, he was later inclined to look upon it as rather the introduction of a new germ, causing the germs already in the system to become active, mentioning among the germs that might be so influenced, the gonococci and streptococci. He cited in support of this theory the fact that some cases giving this history operated on some years ago, showed the gonococcus germ quite virulent, and in conclusion urged the necessity for individualizing the cases.

Dr. Carle Lee Felt stated that in his experience there had been very little difference in the middle ear conditions, following influenza and other middle ear conditions, except the severity of the disease, and cited several cases following influenza, in which between the attacks the ears were perfectly normal.

Dr. Frank C. Hammond stated that he had also observed that the pelvic viscera might be influenced during acute attacks, and stated that he had seen three cases, two in single women, both eighteen years of age, who, on the third day, showed marked pelvic involvement. He referred to a case in which there was pain and rapidly increasing leucocytosis in which appendicitis was suspected, but exploratory examination showed the appendix to be perfectly normal, but there was an accumulation of pus in the abdomen, which was evacuated and drainage established, and the woman made a good recovery. She had been in bed about three weeks when this condition arose. He stated that he had under his care at the present time two cases, one with the loss of the sense of taste which had improved somewhat under strychnine 1/30 gr., four times a day, and one with loss of sense of smell which was still unimproved.

Dr. Samuel P. Gerhard referred to the selection of the various mucous membranes as the situs of complications attending or following the influenza, and dwelt upon the importance of producing elimination as quickly as possible. He stated that last fall there seemed to be an epidemic of streptococcic infection, and now, since the epidemic of influenza has been in progress, there seem to be a great many

cases of streptococcic infection complicating that condition. He referred to a case who complained of pain in the back, and on examination he found an old cyst had broken out, and suggested the possibility of the frequent involvement of the mucous membrane being due to some weakened condition.

Dr. P. K. Schwenck referred to the fact that the ear complications following influenza were mostly unilateral. He believed that most of the severe headaches were due to sinus complications, and emphasized the importance of rest in bed as a part of the treatment of influenza. He stated that he had very few mastoid operations following influenza, and believed that involvement of this region was more frequently caused by other conditions.

Dr. Butler, in closing, stated that in the early stages many of the cases of sinus involvement were merely congestion, and consequently anything that would relieve the congestion would relieve the condition. He also believed that the number of cases of mastoid involvement had been materially increased by the epidemics of influenza. He stated that he had never seen anything in the literature about unilateral involvement, but that it was not uncommon either in otitis media or in eustachian tube disease.

Dr. G. Morton Illman stated that he always warned the patients in the later stages, after the mucus began to collect, against blowing the nose too vigorously, and referred to two cases which had come under his observation last winter, and one this winter, of infection due to too vigorous blowing of the nose. In regard to the use of potassium iodide, he stated that, while he had been able to abort an attack of influenza, he believed the cases were more frequently complicated by otitis.

Dr. Samuel Wolfe, in closing, stated that, while he was in the habit of using considerable potassium iodide in conjunction with other drugs, he had not given it in large doses for abortive purposes. He felt that probably the complications following its use were due to the stopping of nature's methods of elimination. He referred to the frequency of the mucous membrane being the site of complications, and stated that he did not believe cases of pelvic involvement were necessarily secondary infections.

JOHNS HOPKINS HOSPITAL MEDICAL SOCIETY.

SYMPOSIUM ON THE BLOOD PLATELETS.

Regular Meeting, held March 6, 1905.

Dr. Osler gave a résumé of the history of the subject. The blood platelets had, he said, attracted a great deal of attention between 1857 and 1867 after the appearance of Schulze's original article in the *Archiv für mikroskopische Anatomie;* and their clinical significance was promptly studied by Ries, who wrote the first paper on this subject. In 1873 Osler, working in London, noticed peculiar bodies in the blood of subcutaneous and mesenteric vessels of white rats; and these he found to be the individual elements of Schulze's granule masses or agglutinated plates. Zimmermann had seen the same things previously and had called them elementary corpuscles. When watched on a warm stupes Dr. Osler and others noticed marked changes rapidly taking place in the platelets which became elongated and diamond-shaped and finally appeared as threads. It was suggested that they might be parasites; but in 1878 Hayem, in a large work on the subject, called them hematoblasts, testifying to his belief that the platelets played a rôle in the genesis of red blood corpuscles. Bizzozero then showed the platelets to be individual elements and studied their relation to the red blood corpuscles working along the lines of Ranvier's previous suggestions. Next came the demonstration of the importance of platelets to blood coagulation—the work of Eberth and Schimmelbusch, which was followed by Osler's observation that white thrombi were made up largely of platelets. Modern study of the question has been concerned with determining whether the platelets were independent blood elements, whether they were precursors of the red blood corpuscles, or whether they were artefacts due to cellular disintegration. The platelets have been usually overlooked in routine examinations; and their association with disease has not been carefully studied—though great increase in the wasting diseases was noted by Osler long ago.

Histology of the Blood Platelets.—Professor Kemp, of Champaign, Ill., said that in the relatively few years that blood platelets had been known enormous literature had sprung up on the subject. The platelets were best studied, he said, after immediate fixation, or by working in a low temperature and with cold glassware when the changes in the platelets were slow and could be watched. At the end of some minutes (when studied at 40° F.) they became granular, irregular in form, gradually lost their individuality, fused into a mass and finally broke down. *Pari passu* with these changes came the clotting of the blood, the fibrin being deposited thickly about the blood platelets but independent of them—though the possibility of coagulation with intact platelets had never been proven. A smear of blood passed rapidly into salt solution (to wash off the corpuscles) and then put in one per cent. osmic acid gave a beautiful fixation specimen of platelets. There has been a good deal of discussion as to whether oval, discoid platelets were biconcave or not—due, probably, to the change in shape which occurs with the change in containing fluid. They probably do not contain hemoglobin, though Professor Kemp said that he had seen platelets, during some observations at a high altitude, which seemed to be exceptions to this statement. Their function is still a debated question, though it seems probable that they are hematoblastic. The figures given by Arnold, which the author thought proved the platelets to be degenerated red cells, probably represented artefacts. Löwit thought the platelets to be precipitated globulins and not true blood elements; but their observation by Osler within the blood-vessels and later by Bizzozero's son in the frog's mesentery and the bat's wing, seem to prove them independent elements. They are best counted by the indirect method—determining first the red blood count and then the ratio of platelets to erythrocytes. Professor Kemp found experimentally that if blood from an artery be defibrinated and injected back into a vein, the platelets (after sufficient repetition of defibrination and injection) disappeared and the blood refused to clot.

Relation to Disease.—Dr. J. H. Pratt, of Boston, referred first to the great confusion existing in the literature as to the platelets and said that there were marked differences beween these Arnold bodies, which were artefacts, and true platelets. A good preparation of them could, he said, be prepared by fixing the smear in a solution of sodium metaphosphate in sodium chloride. Stained by certain methods chromatin may be shown in them and a pseudo-

ameboid movement has been observed. In health the number of platelets varies greatly but they average about 300,000. Dr. Pratt reported a series of diseased conditions with the plate count in each. The lowest count (7,000) was made in a case of purpura hemorrhagica. The platelets were never absent but were greatly reduced in number in lymphocytic leucemia (series of 8 cases, count varying from 10,000 to 94,000) and in pernicious anemea (series of 10 cases). In secondary anemias they may be increased—a point which may be of diagnostic value in distinguishing from primary anemia. An increase in platelets was found in myelogenous leucemia (count varying from 50,000 to 1,498,000), in chlorosis, in erythrocytosis and in *severe* hemorrhage. Dr. Pratt thought the evidence was conclusive for regarding platelets as third corpuscles.

Dr. Emerson said that he had often seen pseudopsia extruded from platelets, but never any real ameboid motion with progression. The endoglobular degenerations of Maragliano had been shown to have a distinct existence; and it was possible that the platelets might represent extruded "innere Körper," or might be due to the disappearance of the red blood cell from about the "innere Körper" and nuclear material. Dr. Osler said that the changes seen in the platelets were similar to the mechanical changes occurring in red blood corpuscles, and were not truly ameboid. The great number of platelets in embryos and in wasting diseases had never been explained. Dr. Boggs referred to recent work done in Germany in reference to the relation of platelets to coagulation. It was found that if fibrinogen be treated with a mass of pure blood platelets coagulation occurred rapidly, but took place much more slowly if leucocytes were used instead of platelets.

NEW YORK ACADEMY OF MEDICINE.

Orthopedic Section.

Stated Meeting, held February 17, 1905.

The President, Homer Gibney, M.D., in the Chair.

Pott's Disease of the Spine.—Dr. Jäger presented this case: Symptoms began about April 1, 1896. Mother first noticed child holding head forward, and he complained of pain in back and side of neck. Examination at that time showed a well-nourished, healthy boy; walks with head slightly forward. A prominence at about the sixth cervical,—spine below seventh cervical flat and rigid. January 5, 1897: Child in good condition, wearing brace since previous May. No increase of deformity. He wore the brace off and on for two years, then discarded it. There were no symptoms until four years ago, when a boil formed on inner side of right shoulder blade. It was poulticed and broke open, and has been discharging ever since. Two years ago another abscess formed under left shoulder blade. This was opened, and has remained open ever since.

He has had general medicinal treatment—carbolic washes—but has worn no brace. His appetite has been good, he sleeps well, and gets about without any trouble. Lately he has complained of pain in back and shortness of breath. Now the boy holds head bent forward. Examination of spine shows but slight deformity, and the tracing to-day is almost identical with the tracing taken nine years ago. There are two discharging sinuses. A review of the literature shows that disease of the laminæ is very rare. The only reference to a similar case was in the *American Journal of Surgery and Gynecology* for April, 1903, where Eastman (St. Louis) describes a case in an adult.

Report of a Case of Osteitis of the Spinous Processes and Laminæ Simulating Tuberculous Disease of the Body of the Vertebra, or Pott's Disease.—Dr. Reed, House Surgeon, Hospital for the Ruptured and Crippled, (by invitation) read this paper and exhibited this patient: Frances C., aged six years, was admitted to the Hospital for Ruptured and Crippled, June 13, 1904, diagnosis of Pott's disease of the lumbar spine. She was admitted for the relief of an abscess. Nothing definite could be learned in the way of a history. She had been living near St. James, Long Island, for the last three years, and the deformity was not recognized for a month prior to her admission to the hospital. During this month it had rapidly increased, and she presented on admission uniform posterior curvature of the spine from the upper dorsal to the sacrum, but no angular deformity. There was a good deal of infiltration on either side of the spinous process, with tenderness, but fluctuation was not made out. There was a little psoas contraction on the right side, but no psoas abscess was discovered. She was put on a Bradford frame, and two months later the psoas contraction had disappeared, but there could be made out fluctuation over the spinous processes of the dorsolumbar. In December, five months after her admission, there was a distinct tumor and fluctuation under the gluteus maximus muscle on right side, and this infiltration on either side of the spinous processes had rather increased, but there was no marked fluctuation on the left side. The spinal deformity was, if anything, less pronounced. On the morning of February 14 an incision was made through the gluteus maximus down through the sac, and about six ounces of pus, with some caseous material, was evacuated. After it was thought to be completely emptied, the opening of the sac was sutured with catgut, and the skin also sutured. Then an incision was made a little to the right of the spinous processes of the eleventh and twelfth dorsal, and thick, caseous material was squeezed out to the amount of about three or four ounces. There was very little fluid. By pressing firmly over the left side as far up as the upper dorsal this material was forced out of the lower opening. A director came in contact with loose bone. The gloved finger was inserted, and the spinous processes of the lateral masses were felt completely eroded. This large sac was thoroughly cleansed with sterile gauze, and the same care taken in suturing as in the other abscess. At this time the abscess under the gluteal muscles was found to have completely refilled, and the wound was reopened and three or four more ounces of pus evacuated. After it was thoroughly emptied again it was resutured, the child put up in a plaster-of-Paris jacket and spica, and put to bed. Up to the present time there has been little or no reaction, the temperature is about normal, and the case is doing well. Microscopical examination of the pus evacuated showed pus and blood, but no bacteria of any kind.

Dr. H. C. Frauenthal presented a case about which, he said, there was nothing unusual except for the fact that he had worn a jacket for twelve years at Bellevue. He said, in his experience, many patients were discharged as cured after wearing a jacket for various periods, and he wished to show this case as exhibiting the effects of after-treatment. When this young man was discharged he had the charac-

teristic color of patients whose breathing has been restricted for a considerable time. The boy had now a ruddy complexion and an increase in chest expansion of three inches, which change had resulted from physical culture begun in May last—a period of ten months.

Colles Fracture.—Dr. Ashley showed this case. It gave an idea of how much damage such a fracture might do, and the result: Three years ago this boy had a Colles fracture. He was put up with anteroposterior splint. Had great pain and swelling. Hot applications were advised by the physician and used for about a week, and the present condition is more the result of the anteroposterior splint and hot applications than of the fracture. There is a massing of all the tendons. The arm can be straightened, but there are deep scars, due to hot applications applied with the brace. The muscles are all adherent to the scars. The palm was very much contracted, and has been a great deal worse than it is now. The styloid process had been broken or partially dislocated, and the bone was atrophied there. Also some results of the inflammatory process were seen. Nothing had been done until six months ago, when it was straightened by force, and an effort was made to liberate the tendons. At the wrist a transverse incision was made and an effort to reduce the tension upon the palm. His local doctor had treated him by massage. The flexor longus pollicis tendon is rigid. The boy has no power to flex the thumb. Dr. Ashley said he had another case exactly like that in a clinic, that came to him immediately after the injury. It was not so badly scarred as that, and by manipulating it and afterward giving massage, a perfect functional result was obtained. The injury in this case shown to-night occurred three and one-half years ago.

In response to questions, Dr. Ashley said he had tried to loosen the tendons under an anesthetic, and that wrist is loose now compared to what it was. The X-ray showed exactly what the position was before anything was done to it. It did not show the dropping of the wrist so well.

Dr. Jäger described a simple device, gotten up by Schade, in Dresden, for exercising the hand after an injury or phlegmon. It consisted of a series of highly polished wooden rods twelve inches long, graduated from two and a half inches down to the thickness of a lead pencil, with a hook at the end of each, to be fastened to a Whitely Exerciser, or similar apparatus. The patient begins with the largest rod and pulls. If the grasp be not sufficiently strong, it slides out of the hands. Next time he will concentrate his mind, and hold harder. By this scheme of treatment the patient can see if he does not exercise properly. He works at the large rod until he acquires a good, firm grip, then takes a smaller one, so on until the smallest is reached.

Dr. H. C. Frauenthal showed a case in line with the paper he had read at the last meeting. He had several such cases—women between the ages of forty and fifty—but the others could not come. One of them has almost complete anchylosis in both wrists; no motion. Exostosis is same as this woman's hands. This patient had had innumerable doctors and all kinds of treatment—specific—here and at various springs. He thought the trouble due to gonococci. Whether this be true or not, it had yielded to treatment he had given—galvanic current and baking. She had had little internal treatment except laxatives. The joints of hands and feet were excruciatingly painful. No cultures had been made. The trouble had existed eight or ten years—mixed infection, if anything. Dr. Frauenthal thought these joints the kind referred to by Dr. Northrup in the discussion at the last meeting, as cured by this treatment, which had greatly benefited the speaker's patients. This woman had been unable to walk a block without resting, or go upstairs. In a month, after two or three treatments a week, she was much improved.

Dr. Homer Gibney said such cases were frequently seen at the Hospital for Ruptured and Crippled, and they were thought to be rheumatoid arthritis. Perhaps they were cases of gonorrheal infection, but it did not necessarily follow that this case was, as Dr. Frauenthal had no means of establishing it.

BOOK REVIEWS.

The Thyroid and Parathyroid Glands. By Hubert Richardson, M.D., Pathologist to Mount Hope Retreat; Pathologist to Maryland Asylum and Training School for Feeble-minded Children; Demonstrator of Physiological Chemistry, University of Maryland. P. Blakiston's Son & Co., Philadelphia.

No one who has followed the brilliant discoveries in organotherapy through the recent years, and has noted the far-reaching possibilities laid open by this study, can fail to show interest in Dr. Richardson's new book. He has conscientiously collected all the data upon this subject from the existing literature, and by means of his own wide knowledge of and experience with these therapeutic agents has produced a volume of exceeding interest and value. The author first presents the historic and scientific phase of the subject, giving the anatomy, physiology and chemistry of the thyroids and parathyroids. Following this, he fully describes the diseased conditions to which they are liable and their dependent functional alteration. Finally, he shows their value as therapeutic agents and the lasting benefit to humanity the knowledge of their use has contributed.

The work done upon this subject has furnished a most luminous chapter to medical science, and this volume can be recommended as an entertaining and competent dissertation upon this, as yet not widely known, subject.

Conservative Gynecology and Electrotherapeutics. By G. Betton Massey, M.D. F. A. Davis & Co., Philadelphia.

The shocking neurotic conditions often resulting from the wholesale unsexing of women has produced among modern gynecologists a reaction toward more conservative operative procedures. This point of view is evident, as indicated by the title, in Dr. Massey's recent volume.

Since the appearance of the third edition (1898), Dr. Massey has spared no pains to bring his book thoroughly abreast of recent observations and discoveries.

In Part I he finely presents the application of electrotherapeutics to the various female disorders, clearly and copiously illustrating his contentions by reports of numerous cases, and by means of excellent drawings and halftone reproductions.

In Part II he elucidates the rudimentary principles of medical electricity, the knowledge of which has become an absolute essential to the armamentarium of every practising physician. His treatment of this subject is satisfactory and sound, but it is difficult to view the extensive application of the principles in the same spirit of enthusiasm as the author.

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ADDRESSES.

THE AMERICAN MEDICAL ASSOCIATION: ITS ORIGIN, PROGRESS AND PURPOSE.[1][2]

BY LEWIS S. MCMURTRY, A.M., M.D.,
OF LOUISVILLE, KY.

BOTH established usage and the by-laws of this Association require the presiding officer to deliver annually an address touching such matters as he may deem of importance. In the early years of the Association the President's address was devoted to an epitome of the progress of medical science in its various departments during the preceding year. Since distinguished orators are now selected annually to perform this important service, the President's address may be more appropriately directed to subjects relating to the general welfare of the profession and to the purposes for which this great organization was established.

The annual session of the American Medical Association is always an occasion of special moment and universal interest in the medical profession of America. That several thousand physicians from all sections of our broad country assemble annually for the advancement of medical science and the elevation of our profession is a splendid testimonial to the earnestness of professional achievement and aspiration. The occasion cannot but command the respect of all who are concerned in the progress of science and the betterment of the human race. The spirit which pervades such an assemblage is the desire for improvement, for the increase of scientific resources, and for the diffusion of medical knowledge. Closely related to these ennobling purposes is that social instinct of our profession, which would elevate and be elevated by interchange of views resulting from common experiences, and by mingling together in pleasant friendly intercourse. Happily our present meeting is held under ideal conditions for the exercise of all the functions of such an organization. Perfect harmony prevails. The differences which at times have divided us have all been satisfactorily adjusted; and we are to-day as one man in our united effort to advance the science of medicine, to enlarge the scope of its beneficence, and to promote the welfare of our profession.

Since our meeting at Atlantic City one year ago, many of our members have ceased their labors and passed to the great beyond. The list is a long one. Among the number is that of Nathan Smith Davis. He was one of the founders of this Association, an ex-president; a member of the Board of Trustees, the first editor of the *Journal of the American Medical Association*, and for years a power for good in its affairs. He lived beyond the time allotted by the Psalmist, and all his years were filled with labor and with honor. I will not undertake at this time to estimate adequately his great services, or appropriately to pay tribute to his memory. This will be done later in the session by one better prepared than I to eulogize our departed leader.

At our last session, Dr. B. C. Pennington, of Atlantic City, was chairman of the Committee of Arrangements. He was honored with the fourth vice-presidency in recognition of his ability, his high professional standing, and his devoted services to this Association. His name, too, is now found among the year's honored dead. A cultured gentleman, a learned and accomplished physician, his memory will ever remain as an inspiration for high ideals and noble endeavor.

Early Years.—When the American Medical Association was organized in 1846 it is doubtful if there were more than 25,000 physicians in the entire United States of America. It was organized as a representative body, composed of delegates from affiliated societies, colleges, and hospitals throughout the States. It was a body of delegates from all State, district, county and other medical societies which adopted the code of ethics of the national association. The apportionment of delegates was on a basis of one for every ten members of the societies represented. For a number of years the delegate body thus constituted was not too large for the discussion of important subjects and the ready transaction of business.

With the rapid increase in population, the admission of new States to the Union, and the settlement of new Territories, came a vast increase of physicians, with a corresponding multiplication of State and county societies. Without change in the apportionment of delegates, the national association developed into a body too large and unwieldy for the transaction of business. Indeed, during the latter years under the original system of organization, practically every member in attendance on the annual sessions was a delegate. While the work of the sections was carried on with increasing excellence, the important functions relating to legislative and other matters, belonging to a great national organization of the medical profession, were neglected. The general sessions brought together hundreds of delegates, forming a convention so large that thorough discussion of important questions and judicious action on the same became practically

1. President's Address, at the Fifty-sixth Annual Session of the American Medical Association, at Portland, Oregon, July 11 to 14, 1905.

2 Courtesy of the Journal of the American Medical Association.

impossible. Moreover, the delegates attending the annual sessions constituted a body annually changing in personnel; and the sources of attendance changed with the sections of the country in which the meetings were held. In consequence there could be neither that equal representation of all sections which must obtain in a national body, nor continuation of work from year to year along definite lines.

The Sections.—During these early years it was the steady improvement in the work of the sections which drew the best element of the profession to the annual sessions. Many leaders of the profession in the various States attended the sections in which they were interested, and took no part in the proceedings of the general meetings. The sections have now reached such a high degree of efficiency that they have attained the standard so much desired, and rank as leading special national societies in the several departments of medical science which they represent.

As chairman of the Committee on Sections and Section Work, I have carefully studied the workings of the sections. As a result of this experience, I would repeat the recommendation of my distinguished predecessor in this chair, that the secretary of each section should be elected for a term of years. No national society can maintain its efficiency which changes its secretary annually. And again, I would suggest that the officers of the several sections meet together in conference as soon as practicable after the adjournment of the session at which they are elected, in order that definite plans may be formulated for the scientific work of the next annual session. The conference of section officers in New York last November contributed much toward the development of the admirable scientific program now before you for the present session.

It should be the aim and purpose of every member of this Association to aid the officers of the sections in elevating continually the standard of scientific work. Every American physician may have pride in the work done year after year in the sections of this Association.

The Journal.—It would be a difficult task were we to undertake a definite estimate of the influence of *The Journal* in the great work which this Association has accomplished during the past two decades. When it was decided to discontinue the annual volume of transactions, and to establish a weekly journal, the change was viewed with apprehension by many. The influence of this publication, the property of the Association, in stimulating research, diffusing knowledge, elevating professional thought and conduct, and building up this great organization cannot be computed. This part of my discourse is so replete with suggestion, that I fear the time and space at my command will not permit such consideration as should be devoted to it.

The volumes of *The Journal* mark the steady and continued growth of the Association, and likewise bear testimony to the fact that *The Journal* itself has been a potent factor in that growth. Under the judicious direction of the Board of Trustees *The Journal* has steadily advanced as a scientific publication. By the untiring daily services of the present able Editor, it has leaped into the very front rank of scientific publications, and in all that a great weekly medical journal should be it has no superior in the world. The power exerted by such a publication as a medium of communication among the members of the Association is inestimable, to say nothing of the other more important functions performed by a great weekly journal. It has been the most potent instrument in building up this Association to its present proud position as the largest medical organization in the world. No other American medical periodical has a circulation so distinctly national, and no other journal can sustain the same relation to the great body of the medical profession. It is a great engine whose power is constantly increasing, constantly extending. With such increased power comes increased responsibility, much of which rests with the House of Delegates in the selection of proper men to fill the responsible places of the trustees. No other office should be regarded higher in honor than that of the trustees, as no other affords greater scope for unselfish labor and efficient service to the Association. Under the conditions of our organization more power is invested in this board than the combined power of all other officers.

The New Era.—At the annual session of 1900 a committee on reorganization was appointed, and one year later, at St. Paul, the report of the committee was submitted and adopted. It included a new constitution, which altered the basis of apportionment for delegates, so as to reduce the delegate body to 150, and definitely established a close relationship between the national organization and the State, district and county societies. For the first time a practical scheme of complete organization of the medical profession of the United States was provided. This is the fourth annual session held under the new plan of organization.

Previous to the reorganization, the valuable scientific work of the sections constituted almost the sum total of the effective work accomplished by the Association. Matters appertaining to medical education, to the public health, to national legislation, and to the welfare of the profession received no deliberate consideration; and in consequence no decisive action was carried out. This condition existed for the reasons already mentioned. In a word, the very objects and aims for which the Association was organized were thwarted by the growth of the Association into an unwieldy delegate body. Under the reorganization, the House of Delegates, in which the membership of the State societies is proportionately represented, now gives deliberate consideration to those important matters, already

indicated, which under the former organization were neglected.

The influence of the revised plan of organization was immediately apparent in the increased attendance at the annual sessions, and the stimulus felt in every purpose of the Association. And each year this influence has grown, until some idea can now be formed of the great possibilities to come from organization on a definite and practical plan. The good results to accrue to the profession as a whole, and to every member as an individual, are so positive that no subject can deserve more careful consideration by this body than that of medical organization. Indeed, it is the fundamental question before us, and on its decision depend the results of all our other efforts in all directions.

In order that we may thoroughly appreciate the origin and purposes of the Association, and thereby be better prepared to meet its present and future requirements, I have very imperfectly outlined the history of its earlier years. During the more than half century of its existence it has always brought to its councils the ablest and best men in the profession of America. Among its leaders from the beginning are found the most eminent physicians and surgeons of the day. In the list of its active members are the names of Samuel D. Gross, Paul F. Eve, Austin Flint, Marion Sims, N. S. Davis, Alfred Stillé, Lewis A. Sayre, and many others which adorn the annals of American medicine. It has from the beginning been a great power with the profession of America. Its greatest influence, as I have already indicated, was in the growth and diffusion of scientific knowledge through the splendid work of the sections. In elevating medical education, in promoting legislation, and advancing the powers of public health organizations its influence was most felt in the development of a helpful public professional opinion. The extension of the influence and advantages of organization to the masses of the profession was gradually lost sight of in the annual meetings, and the work relating to matters of public policy was spasmodically considered and imperfectly executed. Whatever was accomplished along these lines worthy of mention was the work of committees. The necessity of reorganization was appreciated by the leading members of the Association long before it was accomplished. in 1888, Dr. N. S. Davis, as chairman of a committee appointed for the purpose, reported a scheme of reorganization very similar to that adopted in 1901 at St. Paul.

"*Organization.*—The object of this Association shall be to federate into one compact organization the medical profession of the United States, for the purpose of fostering the growth and diffusion of medical knowledge, of promoting friendly intercourse among American physicians, of safeguarding the material interests of the medical profession, of elevating the standard of medical education, of securing the enactment and enforcement of medical laws, of enlightening and directing public opinion in regard to the broad problems of State medicine, and of representing to the world the practical accomplishments of scientific medicine." (Article II, Constitution of the American Medical Association.)

If every physician worked alone, relied on his own unaided observation for his knowledge, never looking outside his own scope of view, ignorance would prevail and there would be no progress in medical science. Medicine is not an exact science, and until perfected by extorting from Nature all her secrets, it must from the nature of things continue to be a progressive science. Never before in the history of medicine has such marked progress in all its departments been made as during the present age. Theories have been supplanted by facts; laboratory research and clinical investigation have taken the place of tradition and authoritative opinion. To rely on the accomplishments of the college period is to be left behind in hopeless incompetency. The advance of medical knowledge is to be observed first in our medical societies, and afterward in our scientific medical journals. In the medical societies innovations are subjected to criticism and discussion by those competent to judge the merits of scientific contributions. Moreover, there is a stimulus to study and investigation from association with workers in the same field; and one obtains a broader view of every subject so considered. The physician, more than any other professional man, is isolated by the conditions of his life, and to no profession is the educating influence of society work so essential and invaluable. This same condition of isolation is at the foundation, for the most part, of the jealousies and petty bickerings so prevalent in our profession. These troubles are, as a rule, the result of misunderstandings, and are both prevented and corrected by coming together in a society composed of physicians. The lonely worker in any calling is prone to become narrow, suspicious and morbid. Our medical societies are the great postgraduate schools of the profession, where knowledge is increased and individual character developed.

But the promotion of scientific investigation, and the diffusion of medical knowledge are not the only objects of organization. Our profession has a most essential and important duty in relation to the public health. Through no other agency can municipal, State and national health authorities formulate and secure recognition of laws to prevent and control disease. Another duty no less essential is to regulate and to control medical education that the ignorant and unworthy shall not be admitted to the privileges of the profession, thereby preserving the time-honored standard of professional honor and scientific capability. In this age of organization, without it the profession is powerless to secure the enactment of humane sanitary laws, by which alone the people can be protected from

preventable diseases. The welfare of the profession, collectively and individually, can only be subserved by organization. Without such organization, our profession, as a body politic, will be without unanimity of sentiment or action in relation to the important scientific, ethical and social questions which confront us; and consequently without influence, politically, socially or otherwise.

In the declaration of the constitution adopted at St. Paul, which I have just quoted, the American Medical Association has undertaken to place within reach of every reputable medical practitioner in the United States these incalculable advantages of medical organization.

The Committee on Reorganization appointed in 1900 has treated this subject in a masterly manner. After a careful study of the condition of the profession throughout the States with relation to organization, reports have been made to the Association showing the needs of the profession and the extent of the work required. A uniform plan of organization for State and county societies, making the county society the unit of organization, and federating all State societies in the national association in harmonious cooperation, has been prepared by the committee. The able chairman of this committee has, with remarkable tact, patience, and good judgment, given his personal supervision to this great work in almost every State and Territory. In his latest report it is announced that all the States and Territories, except three, and including Hawaii and Porto Rico, are now organized on a practically uniform plan, with universal local societies, and coincident membership in them and the State associations are the cardinal feature. To illustrate the magnitude of this work, I mention that, under the stimulus of reorganization after the plan of the committee, the Michigan State Medical Association increased in membership in one year from 452 to about 2,100. Texas increased the membership in the same time from 382 to 2,510, while several States quadrupled their membership. While these results are phenomenal, and elicit our admiration, it will be realized how much remains to be done when it is considered that few of the States have over 50 per cent. of the eligible members of the profession enrolled as members of the society. Indeed, the work is yet almost in its infancy. What has been accomplished is an assurance for the future; and considering the brief time since reorganization began, is a high tribute to the enterprise of the national association and the work of its able and efficient committee. The possibilities of this work are stupendous, and as it proceeds the Association can confidently undertake the great reforms of such incalculable moment to the profession and the public. In his official report to the House of Delegates one year ago, the chairman of the Committee on Organization, after reporting his labors during the year, said:

"The real test of our organization will come in each State when the first outburst of enthusiasm has passed, and county societies, the foundation for everything, are likely to disappear as rapidly as they have been formed, unless their usefulness to the rank and file of the profession can be demonstrated in a very broad way."

In recognition of this fact, it is of the utmost importance that the personal attention so effectively given to this work throughout the States by the chairman of the committee be continued.

Medical Education.—When the American Medical Association was founded in May, 1846, the delegates assembled in response to the following preamble and resolutions of the Medical Society of the State of New York:

"Whereas, It is believed that a national convention would be conducive to the elevation of the standard of medical education in the United States, and

"Whereas, There is no mode of accomplishing so desirable an object without concert of action on the part of the medical societies, colleges and institutions of all the States, therefore be it

"*Resolved,* That the Medical Society of the State of New York earnestly recommends a national convention of delegates from medical societies and colleges of the whole Union, to convene, in the City of New York, on the first Tuesday in May, in the year 1846, for the purpose of adopting some concerted action on the subject, set forth in the foregoing preamble."

From this it is apparent that this Association was founded with the avowed and specific purpose of elevating the standard of medical education in this country. This subject has constantly received consideration from the Association throughout the years of its existence; and while no distinct and positive reform marks its action, the perpetual demand for improvement undoubtedly molded the public sentiment of the profession which ultimately stimulated action on the part of the medical colleges. Since the addresses of my two distinguished predecessors, who immediately preceded me in this chair, were devoted to the consideration of medical education, I shall only make brief allusion to this subject. The several national organizations and the many State boards which are now dealing with this important professional problem invest the changing conditions with peculiar interest. The present is a transition period in the advancement and reform of medical education in America.

The consideration of this subject in the House of Delegates culminated in the establishment last year of the Council on Medical Education of the American Medical Association. During the past year the council has taken up its work with exceptional energy and good judgment, and is directing its efforts along most practical lines. The first annual conference was held

in Chicago April 20 last. Representatives of many State examining and licensing boards, of the American and Southern Medical College associations, and of the government medical services, attended and participated in the discussions of the papers presented. The plan and scope of the work of the council can be best appreciated by a consideration of this extract from the address of the distinguished chairman of the council delivered to the conference:

"What we need is cooperation, especially the cooperation between the medical profession, represented by the American Medical Association, and the State and county medical societies, and the State authorities, represented by the State licensing and examining boards. The most important question, therefore, before this conference is, How can the American medical profession and the State licensing bodies cooperate to elevate and control medical education? It is believed that such cooperation is possible. In such cooperation it will be the function of the American Medical Association to represent and possibly mold the opinion of the medical profession, and employ its influence and the influence of the county and State medical societies in obtaining proper medical legislation. In such cooperation it will be the function of the State licensing bodies to protect the interests of the public and the profession by seeing that the medical laws are properly interpreted and enforced, and from their intimate knowledge with the medical acts they can often be of service in securing or modifying medical legislation.

"It is not the purpose of the Council on Medical Education of the American Medical Association to attempt to arrogate to itself any special powers, nor does it desire either to criticize or interfere in any way with any of the agencies which are already in the field. If its creation is to result in good, it must be the means of obtaining cooperation between the medical profession and the medical schools, the colleges of arts, the State examining boards, the government services, and all the factors which are interested in elevating and controlling medical education."

By securing cooperation of the various State and national bodies engaged in this important work, recognizing the varied interests involved in the numerous States of the Union, and fostering an intelligent public sentiment, so essential for every great reform, the influence of the Association will be of the most effective character.

Medical Legislation.—Chapter VII, Section 3, of the by-laws provides a permanent Committee on Medical Legislation "to represent before Congress and elsewhere the wishes of this Association regarding any proposed legislation that in any respect bears on the promotion and preservation of the public health, or on the material or moral welfare of the medical profession." This committee was appointed in 1903, and under the leadership of its accomplished and energetic chairman proceeded at once to organize the auxiliary committee provided in the by-laws. This being a permanent committee, its work will be continued from year to year. With the auxiliary committee, representing every State in the Union, and the several medical departments of the Government service, every representative of the people in Congress can be reached directly. The importance of this work is so apparent that I need only call attention to it at this time, and urge on all members of the Association the necessity of aiding and cooperating with the committee at all times. The disregard of the good work of the medical profession in the public service (to say nothing of the indignities offered) on the part of Congress is notorious; and it is only by such concentrated power of the profession, intelligently directed, that such injustice may be overcome. I commend to your consideration the report of this committee in order that you may appreciate the important work already projected.

Council on Pharmacy and Chemistry.—The use of proprietary medicines in the treatment of diseases has become one of the most confusing and demoralizing questions of the day. All proprietary medicines must not be classed as secret nostrums, for there are many honestly made and ethically advertised proprietary preparations that have therapeutic value and that deserve the approval of the medical profession. But there are many preparations offered the profession, which are protected by copyright or trade-mark, with formulæ more or less fictitious, and for which are made extravagant claims, which are in fact secret remedies. These preparations are so exploited by the manufacturer that the physician is persuaded to use them instead of writing a prescription; and since they usually bear popular names and plausible therapeutic claims, they appeal to the fancy of the laity. The field is an enticing one for commercial enterprise since these preparations in many instances are simple mixtures and contain the most inexpensive drugs. The use of such remedies is both unscientific and unjust, alike to physician and to patient.

The separation of the legitimate pharmaceutical preparations from the class of fraudulent nostrums described is a most difficult undertaking. This perplexing problem forced itself from year to year on the attention of the Board of Trustees in the effort of the board to keep the advertising pages of *The Journal* free from unethical advertisements. In order to have thorough protection and to make no unjust discrimination, the board has established the Council on Pharmacy and Chemistry to make the necessary investigations. The council is composed of pharmacists and chemists of national and international reputation. It will be the aim of the council to publish in book form, a list of the preparations which are not official, yet which conform to the proper ethical standard. The

work of the council will be similar to that of the Committee on Revision of the United States Pharmacopœia.

The magnitude and importance of this work is such that I desire to direct attention to it here, and to commend it to the members of the Association as deserving every possible aid and advancement. It is the only practical way to deliver the profession from one of the greatest curses that ever came on it.

It has been my endeavor on this occasion to outline the plans of the founders of the Association, briefly to trace the evolution of those plans throughout half a century of progress, and to recount some of the purposes that invite our active exertions at the present time. From a small body of delegates our Association has increased until it is now the largest medical organization in the world. It owns valuable property, has accumulated a considerable fund, and has a large annual income, all of which belongs to, and is subject to the control of, the members who through their delegates select the Board of Trustees to manage their funds.

The possibilities of the work before us are almost beyond calculation. In acting as the representative and agent of the 120,000 physicians of the United States, the Association is assuming great responsibilities, which will increase from year to year. It will require administrative and executive ability of the highest order to meet these demands; but there is both prophecy and proof in the work already accomplished that men will appear as needed to discharge the supreme duties of a great profession in behalf of science and humanity.

THE DELAY OF OLD AGE AND THE ALLEVIATION OF SENILITY.[1] [2]

BY CHARLES G. STOCKTON, M.D.,
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In 1805, Lewis and Clark, typical and celebrated among American explorers, turned their faces toward the furthest west and disclosed in a single expedition the possibilities of the continent and the mysteries of the great undiscovered. Their feat was in principle but a repetition of the undertakings of Columbus, De Soto and La Salle, of Daniel Boone and the numberless pioneers who so quickly, almost suddenly, transformed America from a desolate wilderness into the puissant commonwealth of to-day. In each we may discern a discontent with the established order and environment of his heritage; an inspiration to find in newness a satisfaction which the settled regions, settled habits of thought, settled manners of life failed to provide him at home. The word "settled" is significant. Our race is without rest until it settles things; and with this there stalks a poignant impatience with the things that are settled. The new, the undiscovered, the unattained, the unprecedented, this it is which charms American manhood. The Muezzin calling his prayers from a minaret in far away Cairo, the yellow haze in the circumambient air, the camels with jingling bells, the palms turned always eastward by the hot breeze from the monotonous sands,—these possess for the western man no attraction greater than that of poetic interest. In these scenes he could never make his life. The European finds in America everywhere that which impresses him with our youth; in the Orient, he sees the indisputable evidence of age and a settled order of things. This exploitation of new lands, the cry of "Westward Ho!" which for the past few centuries has stirred mankind, is rapidly, inevitably dying out; but during the long period of its continuance it has wrought important changes in our point of view, it has stimulated a luxuriant growth of thought, it has modified considerably our nature. As our common interest has been fixed upon the untried, we have gradually come to exaggerate the importance of new truths and to ignore the meritorious which the slow moving caravan of thought has brought us from the ages.

Now, it may seem a *non sequitur,* but reflection leads one to inquire if the great appreciation which we feel for the vigorous youth-spirit of recent times, has not educated us to prize, perhaps to overvalue, youth, to the disparagement, if not to the absolute neglect, of old age.

In saying this we are not unmindful of the element of truth in the right interpreted utterance on this subject of one of our most distinguished colleagues. From the standpoint of the original investigator, as from that of the soldier, or the adventurer, there is nothing to replace the effort of the man under forty; but if for no other reason than to obstruct impetuosity and to provide such a handicap that youth shall not too soon outrun the limitations which a wise Providence has provided, middle and late old age have their uses. At any rate the old man is with us and there appears to be no acceptable method of obliterating him, even if it would add to the welfare of the race to do so.

Finding ourselves in this obvious position, it would seem the wise course so to manage that the disheartening effects of years may be as long as possible postponed; and to seek those methods by whose application we may do our utmost to minimize the terrors of senility. If youth is so delectable, let us find how it may be protracted; if old age is so beset with ineptitude, let us not rest until we learn how it may be mitigated. Such a proposal is not quite identical with a scheme for the prolongation of life—mere increase in years, although it would doubtless include this, however, desirable, or regrettable it might be. It has to do directly with something about whose desirability there can be no doubt. In other words, I ask your attention to the question of the practicability of *keeping* the various

1 Oration on Medicine at the Fifty-sixth Annual Session of the American Medical Association, at Portland, Oregon, July 11 to 14, 1905.

2 Courtesy of the Journal of the American Medical Association.

functions of the organism, of preserving the physical and intellectual powers, of delaying the onset of degeneration as much as may be, of developing a race less prone to early decay.

Then, besides this, I wish you to consider the feasibility of so managing the senile when once their degeneration has arrived, that many of their miseries may be avoided and the remainder lessened in degree. Having granted that age is inevitable the average man would seem to have become indifferent to his penalty for living, and, if complainingly, he none the less heedlessly allows his forces to ebb away prematurely. With some the whole of existence seems to be spent in infancy, adolescence and senility. There is no period in which one can say, "there is full, healthy maturity." When examined this early senility is found to result from pathologic processes and there the observation ends as though it were conclusive. But the event is not thus to be disposed of, for, according to our best standards, senile changes are always pathologic, and, therefore, the question of prematurity rests on some pathologic reason for cause, or else upon inherent weakness in human vitality. We are in the habit of speaking and thinking of senility as something separate and apart from disease; as a result, not sufficient attention has been given to the question of prevention of age.

On this subject one cannot escape the bold work and bolder thought of Metchnikoff, and I quote at once his description of the degenerations of age: "In senile atrophy the same condition is always present: the atrophy of the higher and specific cells of the tissue and their replacement by hypertrophied connective tissue." It is this same process on which every teacher of medicine constantly harps in discussing disease, the disappearance of the parenchyma and the increase of the stroma.

One need not dwell on the theory of Metchnikoff as to the rôle of the phagocytes in the process; for the moment it is enough to know and recognize that senile atrophy is pathologic and that, essentially, old age is disease. It is unnecessary to discuss the plausible but startling sugestion—that of finding some antiserum which might antagonize the development of the age-producing agencies. Already we possess some knowledge of how to defer age, but this information is not generally insisted on as a guide in living. We frequently allude to measures of prevention, but we do not reduce them to a system which can be taught to the student and to society. If we are further to lengthen the probational study period in medicine, it will be wise to give the matter of deferred old age very careful consideration. If the subject were studied seriously, we would foresee a tremendous improvement in the type of humanity, and the readjustment of many habits, customs, social questions along altogether new lines.

Obviously, real progress cannot be made without accumulating data from which to deduce positive conclusions. At present we lack information on such simple matter as the effect on the organism of diet, exercise, recreation and rest. There are many opinions, but they are largely theoretical. To begin with, we must know something about the material with which we have to deal; that is, the inheritance, the reserve powers, the internal resistance of the individual. In fact, we know very little concerning the inheritance of any one. All are more or less obscure in the matter of family history. There are courts of records in which are found descriptions of estates, but there are no archives in which are deposited accurate descriptions of the various members of the family itself. We are more particular in relation to our domestic animals, especially in the introduction of a new strain. Inquiries are made as to the matter of endurance, longevity, powers of nutrition, good or bad qualities of mind or body, but concerning ourselves, there is an indifference to these important qualities of organic perfection. It would not seem to be altogether impossible to acquire some official record of the physical and intellectual qualities, in other words, strains in men. It is not improbable that if such records were known to exist, they would be not only consulted, but would gradually grow to have an influence on the formation of families. Love is said to know no barriers, but history fails to confirm this view. If a matter of class, of caste, or rank, has been sufficiently important to control the forming of marriage contracts, it is not impossible to conceive of a more intelligent public sentiment which would make an alliance with a family celebrated for physical, intellectual and moral superiority, a thing greatly to be desired; and conversely, which would lead to the abhorrence of an alliance with a family in which freaks, degenerates and incompetents, or in which a tendency toward lowered nutrition, too early maturity, or premature senility were frequent events.

Naturally this is not an affair of a generation, but it is unquestionably a doctrine which ought to be taught. The notion that acquired characteristics can have any transmitted influence on the character of the offspring, as formerly taught by the Lamarckians, is still doing great harm. Our young people should be instructed in the fact that the well being of their posterity depends almost altogether on the native stamina of the germ-plasm with which they are endowed. They should be taught to understand the responsibility implied in maternity and paternity, and should be made to recognize that the greatest influence which they can have on the well-being of their children is in the selection of the sponse. The sentiment should be encouraged that parentage is a matter which concerns the public, and especially posterity, more than it does the parent; that the germ-plasm of the race is of all questions the most important which con-

cerns it. Measures could be adopted which would make it more possible than at present for individuals to inform themselves concerning the family characteristics of the contemplated fiancée. A bureau for the precise registration of disease and causes of death, together with the chief facts in family and personal history, might be established through legal enactments, reinforced and made active by a high social sentiment. Such a bureau would afford the needed information, and the special study of the material thus provided would result in the formation of guiding principles in human biology and race development.

Such a system might seem to be contrary to our laws of personal rights, and, of course, the sanctity of reserve may not be easily disrupted. Nevertheless, with Emerson, "We shall one day see that the most private is the most public energy; that quality atones for quantity," and although we cannot attain at a bound to these heights of wisdom, we may, at least, begin to map out a way. He is short-sighted who supposes that the complacency shown in the devolution of the race must continue, unchanged, eternally. We have only admiring applause for the remarkable accomplishment of Burbank in the vegetable world, and yet such are our deep-rooted prejudices that we shrink from the application of similar principles to human uplifting even when we know it is possible. Shaler remarks that man "sorely needs a herdsman's care." The subject is painful, yet I think it will be acknowledged that susceptibility toward tuberculosis, insanity, alcoholism, epilepsy, *et cetera*, is hereditary. Granting this, it follows that a stock could be developed which practically would be immune to those diseases. Doubtless all will regard the realization of this suggestion to be remote and some may liken it to that of Maeterlinck, who says: "Man may sometime master the secret of gravitation and by means of it steer his planet wherever in the universe he wills." The principle is open to such wide application that it may easily be obscured in absurdity. Nevertheless, here is an honest straightforward truth not so far beyond our reach. It lies in a public demand that none but healthy parents shall be allowed to bear children. The brevity of middle age resides, first, in the inherited quality of the organized tissue; second, in the effects of its environal conditions on each organism. We physicians are making it our function to exterminate disease. Why should we be content with merely pointing out that certain disease tendencies are hereditary without taking some practical steps to prevent such disease. Why should we be content with merely pointing out that certain disease tendencies are hereditary without taking some practical steps to prevent such disease transmission? As an illustration, it doubtless would be a hardship to the syphilitic to make procreation for him a penal offense. Nevertheless, such a course would be full of beneficence to the race. The amount of nervous and other disease in the innocent resulting from syphilis in progenitors is incalculable. The incompetence and misery which often overtake the unfortunate victim in middle life as the result of syphilis, one or two generations removed, must be considered. Those who have studied the subject carefully, regard this disease as responsible for one-fifth of all cases of arteriosclerosis, and of yet a higher proportion in those cases occurring in middle life. A man has not the moral right to beget disease. Notwithstanding that it usually comes through ignorance, it should not be allowed. The profession of medicine should make its convictions bear fruit, and should teach and should be expected to teach that the marriage of a large number of people whose nuptials they now help to celebrate should either be prohibited or else made barren. To those who would regard the realization of these thoughts as unattainable, it may be remarked that the world is yet very young, and as a result, as Carlisle has said, in most things very stupid. At any rate it will be admitted that middle age could be considerably prolonged and the infirmities of old age largely mitigated if we could eliminate from the equation that faulty cell metabolism which arrives through inheritance.

The trend of modern thought is toward the development of the individual. Our researches in therapeutics, dietetics, immunity, gymnastics all alike are directed toward the betterment of the individual by making life possible to many who would otherwise perish, comfortable to many who would otherwise survive in misery—results in prolonging life. Our educational efforts concern themselves more and more with fitting for life the otherwise unfit, in so dealing with the neurotic, the semi-imbecile, the vicious and criminal that they may be practical units in the body politic. The result is that individuals otherwise impossible are so modified that they are finding some happiness in life and become less disturbing elements in society as a whole. There can be no doubt as to the benefit to the individual, and no doubt as to the good which comes from the reflex effect on society. Perhaps nothing counts more for the moral uplifting of the masses than the awakening of personal interest in all altruistic undertakings, but let me repeat, we must dismiss as untenable the views of the Neo-Lamarckians that acquired characteristics of the individual have any appreciable effect on the offspring. It is acknowledged that the natural tendency of defectives of all kinds is toward extermination. Left to themselves, many of these weak strains would disappear. In making it possible for these strains to continue to blend and to dilute the organic type of the race, we are unquestionably lowering the future standard of internal resistance and we are creating a threat to physical, intellectual and moral perfection.

On this subject Professor Woods Hutchinson of this city has said some interesting things.

Is it unchristian or unethical to consider this question from the phylogenic standpoint, or, on the contrary, is it not from the highest ethical plane that we look forward to a means that may elevate man spiritually, strengthen him intellectually, increase his vital and physical vigor, thus widening the period of his usefulness and decreasing his sufferings as a whole? We find ourselves sustained in our efforts when they are directed toward helping the individual, but there seems to be a social veto placed on the study of generic betterment. Weismann and his followers have shown us that the character of the individual depends on the germ-plasm with which he starts life, and although education and favorable environments may modify greatly the individual, they have no effect whatever in improving the character of his posterity. The possibilities of an individual, his resistance to disease, his longevity, his strength and his intelligence are determined beforehand by his inheritance. It is known that it is possible to bring deterioration by introducing an inferior strain. No educational advancement can counteract the injurious effects of this preservation and inbreeding of the bad stock. Unless intelligent foresight be used to prevent this definite and ascertained source of degeneracy, we are likely to find a growing depreciation of our racial stock and, in spite of our modern preventive medicine, a progressive increase of mental and physical disease, and an abbreviation of the working years. By homely methods we have learned that aside from the question of perfect nutrition and proper exercise of function, there is nothing which contributes so unquestionably toward the improvement of organic life as intelligent study of what is known as breeding, in other words by the intelligent blending of the germ-plasm of healthy, resisting, long-lived stock so that there may result not inferior progeny, but offspring superior to the parental stock. I am aware that the question is not new, and that its mere mention exposes one to criticism, not only from the timid and ignorant, but even from the wise and philanthropic, and yet, no one can deny that in shutting our eyes to this truth which Nature spreads plainly before us and which she makes the subject of countless lessons illustrated by individual inferiority, perversity, disease and death, we are not doing all that we ought for the coming race, not all that we might toward assisting that evolution which we hope for, but which lingers so in the process. It will be said that no one can contemplate such a scheme as is here suggested without feeling strongly convinced of its impracticability. Of course, it must be admitted that the large fulfillment of such ideals is at present quite impracticable, but it is not impracticable to study the subject with the hope of finding certain aspects which may admit of modification.

By a study of the subject we would at least offer a reasonable antidote to the possible injurious effects of the modern rage for individualism. More than this, it may be possible, by more or less united action, so to modify established customs, social tendencies and common law that we may elevate the sense of family, and possibly municipal and national morality to a standard high enough to result in our placing the welfare of the community above the desires and the instinct of the individual. As we have somewhat meddlesomely diverted the natural tendency of deterioration and degeneration from its end, thus interfering with the action of the law of the survival of the fittest, it does not seem improper that individualism should recompense society by yielding some of its prerogatives for the welfare of the race; or, to put it more pointedly, it would seem only fair, since we have preserved the life of the weakling, that we should deny him the privilege of paternity, or since we have educated the defective or criminal youth into semi-useful citizenship that we should forbid him the right of increasing the number of his kind. In one of our States a legislative enactment looking toward this end was recently vetoed by the governor who accompanied his decision by a conventional lecture to the profession of medicine on its willingness to disregard the rights of individuals. This illustrates one of the difficulties in the way, and would seem to indicate still another field in which physicians must assume their rôle of public educators. The sentiment of the people is instinctively against public interference with personal privilege. This feeling seems to be particularly strong in the Anglo-Saxon people, and to be contrary to the nature of our institutions; yet, like every other privilege it is susceptible of doing great evil if carried to its full logical extreme.

Are we not as an organic type suffering from an extreme application of individual rights? Are we not inflicting an injury on the race through permitting unwholesome privileges to the individual? Is it necessarily dangerous to attempt to create a public sentiment, a social feeling toward the making of new customs and the enactment of new laws which may result in the elimination of at least some of the more abhorrent and destructive elements that at present are blending with and antagonizing the evolution of the race? Would it not be desirable to have an aristocracy of health? That is to say, to see developed a zeal for physical and intellectual perfection, and to have that zeal supported by public sentiment, so that there might be created something like a caste, the attributes of which should be mental and physical wholesomeness, and from which should be excluded those families which are shown by carefully studied data to come of degenerate or unfit stock? This would result in a contest between the general and the particular. At present the particular, the individual, prevails; in the presence of rightly adapted social feeling

the general would prevail. Evolution would thereby be speeded and not retarded as at present. The principle involved does not seem to be any more unethical than the application of the quarantine laws which now operate injuriously to the individual, but make greatly for the public good.

Let us now consider what may be accomplished in the way of postponing age by the reasonable treatment of even the poor material that comes to us. Undoubtedly the question is as broad as the whole subject of personal hygiene and general therapeutics, and so, for the most part, must be passed; there are, however, some aspects of the subject which deserve special consideration. One of these is the improvement in the nutrition of the aged as the result of good teeth. While all recognize the comfort and convenience which we owe to the dentists, it is doubtful if we fully appreciate how much they have contributed to good health and longevity. For another great advance we have to thank the oculists. Who can estimate the additional resources both of usefulness and happiness secured through the discovery of spectacles and the operation for cataract? Useful eyesight contributes much toward health and long life for the reason that it permits of a continued interest in living which otherwise would be lost. It permits of a struggle for an ideal and in this real happiness consists. The ideal, of course, is never reached, but, as Montaigne says, the reward is not found in the victory, but in the conflict. Perhaps no one factor is so important in maintaining courage and health in old people as the creation and continuance of some keen interest in life, and this interest, even in the otherwise enfeebled, may be kept up by means of useful eyes. Now comes the time worn but neglected subject of arterial disease.

Too often our attention is for the first time attracted to arteriosclerosis by the appearance of fibroid or fatty degeneration, exhibiting itself in the figure, form and viscera of the individual. Even after these later changes appear measures may be adopted to stay the march of the process, but how much better it would be to anticipate it. For instance, by noting the high and rising blood pressure and the physical signs of cardiac strain, by estimating the decline in urinary solids and the rise in the urotoxic unit, by measuring the decline in respiratory capacity, or by detecting the falling off in cutaneous secretion and the loss of the pliability and softness of the skin, we may make ourselves aware that vascular degeneration is progressing. Heedless of these earlier manifestations we shall soon awake to the advent of the state which Sir James Paget has so marvelously described.

In the earlier steps of arteriosclerosis, if intelligent study be given to the individual, to his habits of life, to his excesses and to his deficiencies, very much can be done, and, by thoughtful men, is done, to delay arterial changes and to restore functional activity.

May I trespass so far as to emphasize the importance of judging and correcting the disturbed balance between assimilation and waste —the anabolic and katabolic processes? The facts are so well understood that one hesitates to mention them, and yet just here there is so much neglect of precious opportunity. There are successful methods of lessening the extent of auto-intoxication and of widening the field for the play of nutritional processes. This is so commonplace that we neglect it. Middle age often brings luxury and at the same period the contracting arteries narrow the field of physiologic activities. The circumstances of life and the taste of the man for indulgence in appetite or for excess in undertakings, while the limitations of the organism are increased. The tendencies are thus in opposite directions, and, with Munsterberg we ask, "How can they keep together who are going different ways?" Ultimately, they must separate, of course, but temporarily they may keep company if we help to preserve harmony between them. There is abundant proof that even advanced arteriosclerosis may be so far modified as to delay the oncoming degeneration and to admit of happy usefulness, but the victim must be content with moderation and not hope like Mahomet to cleave the moon in twain.

Advanced arteriosclerosis is too generally neglected, and intoxications of one kind or another are for the most part responsible for it. Our prophylactic and curative measures are readily understood. It is well known that the relatively great fatality of pneumonia and other acute diseases is explained by the greater toxemia which exists late in life. Besides this, the auto-intoxication increases the blood pressure and induces prematurely fatal events of cerebral, cardiac and renal diseases. Almost as deplorable as these are the conditions of unnatural excitement, confusion and depression from which many people unnecessarily suffer in old age. Still further, there may be found in vascular disease the source of much severe pain from which old people suffer. This pain is often referable to the aorta, at times to those forms of aortitis and peri-aortitis of the abdomen recently so well set forth by Teissier of Lyons. The latter has also shown that the pain can be ameliorated, the progress of the disease stayed and even great improvement induced by rational treatment. Aortitis and peri-aortitis often greatly interfere with the flow of blood into the branches of the abdominal aorta, and as a result the organs supplied by these branches suffer special degeneration. In middle age and later life, intractable diseases of the stomach, kidneys and other organs could be dealt with much more successfully, and comfortable longevity secured, if more attention were devoted to this pathology.

There remains for brief consideration the question of what can be done to make old age more tolerable; in other words, to remove it to a physiologic basis. We find on close consider-

ation that most of the derangements from which the aged suffer can be classified as belonging distinctly to pathology, but I am afraid there exists a tendency among us to dismiss these matters as necessary corollaries of senility, without giving them that careful consideration which similar processes receive in younger patients. To a few the diseases of old age have a peculiar charm, and these few who give senile diseases special study seem to agree that the complaints of the aged arise for the most part from toxic causes. Even the threadbare question of arteriosclerosis falls to a large extent under this head. There is good reason for believing that this toxic state which underlies the decadence of senility takes its origin for the most part in the colon. Metchnikoff supports the view that mammals have developed a large colon for the purpose of storing the products of digestion, and that man has inherited a large colon at the expense of his longevity. This organ harbors an immense number of bacteria, leading to fermentations, putrefactions and the production of alkaloids, fatty acids and toxins which man has to combat for the length of his mortal days. While vitality is young and vigorous, the combat is not so unequal, but with failing powers auto-intoxication prevails in the contest between the internal resisting powers of the organism and the toxic adversary made potent by inheritance. Unfortunately the degeneration of age first produces functional insufficiency of the organs of elimination, then their degeneration, and as a result we find the skin, kidneys, lungs, liver incompetent in each individual overtaken by years. It is somewhat remarkable that facts so well understood as these do not receive more attention.

There are few text-books, there is little teaching devoted to the pathology and right management of senile disease, and yet experience teaches that few patients respond more satisfactorily than do the aged if their cases are approached with the principles in mind which are here set forth. It is not merely a question of dilatation of the colon, nor of any special defect of the organ: even in the absence of these, the source of auto-intoxication exists and becomes important because of the failure of the skin and other emunctories which, earlier in life, are relatively sufficient. The indications are obvious. In addition to the usual measures for improving the general circulation, old people are benefited by systematic colonic lavage, stimulating baths with superficial massage, prescribed pulmonary gymnastics and an abundant drinking of pure water. It is the almost universal effect of these matters which has made it seem to me a subject of sufficient importance to call to your attention in a general address. There is something inspiring about youth which gives an incentive to our care of the diseases of childhood and adolescence, but there is something benignant in studying the problems that lead to the postponement of age and to the alleviation of the trials of senility. Old age is repulsive when it is pathologic, but it is beautiful when it is physiologic, and it would appear as a fitting theme for the consideration of this great body at its meeting in this new land of the setting sun.

THE INFLUENCE WHICH THE ACQUISITION OF TROPICAL TERRITORY BY THE UNITED STATES HAS HAD, AND IS LIKELY TO HAVE ON AMERICAN MEDICINE.[1] [2]

BY GEORGE BLUMER, M.D.,
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IT is a custom in many universities, both in this country and in Europe to allow each professor leave of absence during every seventh year of service. This custom is doubtless based on the Sabbatical year of the Pentateuchal codes, an institution which demanded that the fields be allowed to lie fallow every seventh year. It is a question whether the Sabbatical year, as an institution, could not with benefit be introduced into matters medical, and whether we might not profit by resting every seventh year, and devoting our time, not to the strenuous throes of medical existence, but to a calm, dispassionate review of the progress of medicine in the preceding septennate, and the factors which have influenced that progress. With this idea in view I have chosen to speak to-day on an aspect of our medical progress which is now in its Sabbatical year.

It is at present almost exactly seven years since, by the terms of treaty following the Spanish War, the United States came into possession of tropical territory in both the eastern and the western hemispheres. It is unnecessary and inappropriate to discuss here the general significance of this territorial acquisition, its bearing on politics, its effect on commerce, its influence on public affairs in general: it is sufficient if we, as the representatives of the medical profession of this country, take stock of the medical questions involved, discuss their significance, and gauge the effect which they exert on American medicine in general. No doubt many of our hyperopic brethren foresaw, seven years ago, some of the effects which our acquisition of Porto Rico and the Philippines was to have on American medicine. There is just as little doubt that some of the results were entirely unlooked for, and have been complete surprises. It might appear at first sight that, from analogy, we should have been able to foretell the influence which increased commerce with our tropical territory, and the return of our soldiers and sailors with tropical diseases, would have on medicine in the United States. Obviously one would look to the experience of European countries, and notably of England, to form a basis for judgment, for these countries have had tropical possessions for generations. It must not be forgotten that

[1] Oration on State Medicine at the Fifty-sixth Annual Session of the American Medical Association, Portland, Oregon, July 11 to 14, 1905.

[2] Courtesy of the Journal of the American Medical Association.

the physical conditions here are different from those in Europe, for while Europe is almost entirely within the temperate zone, portions of this country are semi-tropic, and a few very small areas are actually within the tropical belt. The United States, therefore, presents a much more favorable soil for the transplantation of tropical diseases than does Europe. Realizing this, numerous American writers on tropical diseases have sounded, in the last seven years, notes of warning and alarm. Their apprehensions are based more on theoretical grounds than on observed facts, but for all that are worthy of our most serious consideration. The object of this inquiry is to determine, if possible, how great this danger is. What are the prevailing diseases of our tropical possessions? Which of them, if any, has appeared among us; which, if any, has gained a foothold on our soil; and which may possibly become widely distributed? Aside from endeavoring to answer these questions, we may with profit glance at the effect which the study of tropical diseases has had on the comprehension of cognate diseases in the United States, and also observe that it has led to the recognition in this country of unsuspected diseases of wide distribution, and great economic importance.

Uncinariasis.—Perhaps one of the most startling results of the increased interest in tropical diseases has been the discovery that large sections of the southern portion of this country are infected with the hookworm, and that large numbers of the inhabitants are suffering from uncinariasis (anchylostomiasis) or hookworm disease. The starting point of this remarkable discovery was, almost certainly, the work of Ashford in Porto Rico in 1900. This observer noted the great frequency of the disease in that island, and pointed out that, to a large extent, the disability and wretched condition of many of the natives was due to it. The credit for drawing attention to the probability that the disease was widespread in our Southern States is due to Charles Wardell Stiles, the Zoologist of the Bureau of Animal Industry, and to him also is due the credit of amply proving what he at first brought forward merely as a probability. It would be out of place here to go into detail as to the clinical history of this disease, or the minute structure of the parasite which causes it. Mention must be made, however, of Stiles' discovery that the American uncinaria differs from that of Europe. It will be of interest to consider the geographical distribution of uncinariasis in this country, the main facts connected with the method of its spread, and the evidence as to the likelihood that it will become more widely prevalent than it is at present.

Up to the year 1900 not more than ten authentic cases of uncinariasis were on record in American literature, though there are statements by Southern physicians in the writings of the early part of the nineteenth century which leave little doubt that the disease was then prevalent. During 1900 and 1901 only nineteen cases of the disease were reported, but in 1902, following the publication of Stiles' monograph on "The Significance of the Recent American Cases of Hookworm Disease in Man," the number of reported cases rose at a bound to 524. In 1903, 273 cases were reported; in 1904, 334; the number this year will probably not be so large, as the disease is no longer a rarity to Southern physicians, and they will not be so apt to record cases. Prior to 1900, then, possibly ten authentic cases of hookworm disease had been reported; since this date I have been able to collect from the available American literature 1,212 cases, of which 1,095 originated in the United States, and 117 were imported from other countries, mainly from Porto Rico and the Philippines. Of the latter 62 are reported by Gunn, and occurred in San Francisco, mainly among Porto Ricans.

If we separate the domestic from the imported cases we find that this disease is distributed mainly through the Southern States along the seaboard from Virginia to Texas. But it is not confined to seaboard States, for Missouri and Tennessee are also infected. The States in which the disease is known to be indigenous, and probably widely distributed, are Virginia, North and South Carolina, Georgia, Alabama, Florida, Louisiana, Texas, Mississippi, Missouri and Tennessee. This list of States includes only those in which definite evidence of the presence of the disease has been furnished; it does not include, I think, all of the infected States. Taking into account the similarities of soil and climate, anyone who will take the trouble to make a map of the known infected area will feel convinced that Arkansas, Indian Territory, Oklahoma, West Virginia, Kentucky, and the southern portions of Illinois, Indiana and Ohio are also probably infected. The physicians in some States have shown a lamentable lack of enterprise in investigating this disease, while in other States extensive and valuable studies have been made of it. As I have already stated 1,095 cases of domestic uncinariasis have been reported since 1900; 824 of these have been observed in three States, Georgia, Alabama, and North Carolina. This has been due to the interest and energy of single physicians, in Georgia of Claude A. Smith, Warfield and Harris; in Alabama of E. D. Bondurant, and in North Carolina of Nicholson and Rankin. A knowledge of the distribution of the disease is not merely of academic importance, for the economic aspects of uncinariasis are paramount. There is little doubt that the stigma of laziness and general inefficiency which has attached for generations to the so-called "poor whites" of the South has been earned by them not as a result of qualities due to innate "cussedness," but because a large percentage are suffering from uncinariasis with the resultant physical and mental deterioration. This being the case, a plotting out of the infected areas is one of the first steps which must be taken preparatory to

stamping out the disease. This is only one step, however, the others depending on our present conception of its method of spread. At present there are two main theories as to the means by which the parasite gains entrance to the body, the one presupposing that it enters through the alimentary canal, the other that it gains entrance through the skin. The advocates of the former theory hold that polluted drinking water, and food soiled by dirty hands are the means of introduction, the advocates of the latter, that the so-called "ground itch" is the point of entrance of the *Uncinaria rhabditcs*. There is a good deal of evidence in support of both views, though the work of Claude A. Smith and of Nicholson and Rankin favors the idea that the cutaneous form of infection is the more important. In view of this the wearing of shoes, especially during the rainy season, becomes the most important prophylactic measure, though the necessity for pure water supplies and the proper disposal of excreta still remains of great importance. In all such matters the enforcement of hygienic laws can never be obtained without education of those who are at fault. As uncinariasis is essentially a country disease (I have not been able to find on record a single American case which originated in a city), the question is one which must be dealt with by the country physician, on whose back falls a heavy load of responsibility. The stamping out of this disease is, of course, of great economic importance to the South, but, further than this, the question arises whether it may not be of importance to other parts of the country. Is there any chance that uncinariasis may become more widely distributed than it is at present? The question is a hard one to answer. While there has not been a lack of physicians who have predicted such a spread, it cannot be said that there is much actual evidence that it has occurred. There are a few instances in American literature in which the evidence plainly points to infection of natives from imported cases. Such, for example, are some of the cases reported by Möhlau in Buffalo, where Polish and Italian laborers contaminated a brickyard. That such sporadic outbreaks can and will occur cannot be denied, and physicians all over the country should be on the lookout for them. Whether the disease will ever become widespread outside of its present habitat is quite another story. It must not be overlooked that a variety of circumstances are necessary to its spread; the right kind of soil, sufficient heat, and enough moisture for the parasite, and a lack of certain hygienic precautions on the part of the inhabitants of the area to be infected. The absence of any one of these conditions may be fatal to the dissemination of the disease. Considering the fact that uncinariasis has existed in the South for at least 100 years, and probably longer, it does not seem very probable that it will ever extend much beyond its present limits. What is needed at present then, is a more accurate knowledge of its distribution, and the inauguration of an educational and sanitary campaign to effect its extermination.

Dysentery.—One of the first diseases which the American army surgeons in the tropics had to confront was that scourge of camps, dysentery. The study of the acute form of the disease had received a great impetus from the work of Shiga in Japan, and the investigation of this condition in the American troops in the Philippines, instigated by Flexner, has since been carried on by Strong and Musgrave, J. J. Curry, and Charles H. Craig. It can fairly be said, I think, that our conception of the etiology of dysentery, and particularly of the tropical form, has been completely revised in the last few years, and this revision has depended, in no small measure, on the work of American investigators. So far as tropical dysentery is concerned, the studies of recent years have taught us to recognize two distinct forms, the bacillary and the amebic. The bacillary form, of which the acute dysentery of the tropics represents the most common type, is due to an organism first described by Flexner, and closely allied to the bacillus described by Shiga in the epidemic dysentery of Japan. In the chronic forms the ameba seems to have held its ground as the main causal agent, though the earlier investigators in the Philippines seemed inclined to think that it was usually a secondary invader. Our knowledge of the life cycle of the ameba, of the differentiation of pathogenic from non-pathogenic forms, and of the cultivation of the organism, has been achieved in the past few years, and is associated with the names of Craig, Strong and Musgrave, and Caspar Miller. A more exact knowledge of the complications of dysentery has also resulted from the work of our army surgeons, and it is to be especially noted in this connection that the so-called "tropical" abscess of the liver is nearly always due to the amebic as opposed to the bacillary form.

The most surprising and unlooked-for result of the stimulus given to the study of dysentery has been the discovery that the same group of organisms which are responsible for tropical bacillary dysentery are also concerned in dysentery in this country, and in certain forms of the summer diarrheas of infancy. The first steps in determining these relationships were taken under Flexner's guidance during 1902. In that year Vedder and Duval published the result of their work on the dysentery of the United States, work which was based on both sporadic and epidemic cases, and which showed that certain types of dysentery all over the world were due to the Shiga group of bacteria. In the same year Duval and Bassett published their preliminary announcement of the isolation of bacteria of the same group from cases of infantile summer diarrhea. Subsequent studies, conducted mainly at the large centers in the East, have, in the main, confirmed these observations,

and have led to more accurate knowledge of both the clinical and bacteriologic aspects of these two classes of disease. Since 1903 investigation has been mainly focussed on the summer diarrheas of infancy, the scourge of the tenement districts of the large cities. These studies have resulted in the classification of the *Bacillus dysenteriae* into three main types, a differentation which was suggested in part by Gay and Duval in 1903, and which has since been rendered more exact by the work of Hiss and Russell, and that of W. H. Park and his associates. On the clinical side it has been shown that all classes of summer diarrhea are not due to organisms of the dysentery group, but that certain types associated with mucus and blood in the stools are nearly always associated with them. It has also been shown that these organisms, like the pus cocci, may give rise to primary infections, or may play the rôle of secondary or terminal invaders. Mild cases without blood in the stools may also be due to this group of organisms, accurate and early diagnosis only being possible in any type of case by means of a bacteriologic examination of the feces. The serum reaction, while of some value, appears late in many cases, and is not available for early recognition of the disease.

In his report on Philippine dysentery Flexner suggested the possibility of serum therapy in these cases, and the discovery of the relation of the *Bacillus dysenteriae* to infantile summer diarrhea led to attempts at the production of a curative serum. During 1904 such a serum was used in a number of outbreaks of dysentery and summer diarrhea. The results, as a whole, have been disappointing, and will probably improve as we gain in experience. As Booker pointed out in 1903, little is to be expected from the serum in cases in which marked anatomic lesions are present. The work done under the Rockefeller Institute and summarized by Holt shows that the serum to be of value must be used early and in repeated doses. Judging from the results of Shiga in Japan more is to be expected for the serum treatment, and, as a matter of fact, it has not yet received a fair trial in this country. At present we need more knowledge regarding the natural history of the dysentery germ, its method of introduction, and the distribution of this form of infection in the United States. As regards the means by which the germ is introduced into the body there is already some evidence, both from the Philippines and this country, that contaminated water is at fault, but the whole matter needs more thorough investigation. The distribution of this form of infection has hardly been studied outside of the large cities of the East, and although the severe forms of infantile diarrhea are almost unknown on the Pacific Coast, there is little doubt that they exist in the South and Middle West.

Yellow Fever.—At the time that the Island of Cuba was occupied by American troops in 1898, yellow fever had been endemic there for 130 years. The disease was not widespread, but was mainly confined to the coast towns, and was particularly prevalent in Havana, the continuous stream of non-immune Spanish immigrants serving to keep up the infection. A great deal of study had been devoted to the disease at this time, and in the years immediately preceding the Spanish war renewed interest had been awakened by the work of Sanarelli, who claimed to have found the causal agent in his *Bacillus icteroides*. His claims had met a good deal of opposition, especially from Sternberg in this country, and many yellow fever experts did not accept his results. In view of the prevalence of the disease, and the constant menace which it offered to our Southern States, a commission composed of Walter Reed, James Carroll, Jesse W. Lazear, and Aristides Agramonte was detailed to Cuba still further to study it. The commission presumably started out with a disbelief in Sanarelli's work, for certain of the members had published investigations showing that the *Bacillus icteroides* was closely allied to, if not identical with, the hog cholera bacillus. While Sanarelli's work was repeated as a necessary precaution, and was proved to be erroneous, the commission concentrated its efforts on the investigation of the relation of the mosquito to yellow fever, a relationship which had been insisted on by Carlos Finlay, of Havana, for nearly twenty years, and which the work of Carter on the time limit between primary and secondary cases rendered probable.

It is not necessary to go into details as to the methods used by the commission in their work, further than to state that they were scientifically above reproach. It will be of interest, however, to consider their results, and the influence which they have had on the practical aspects of yellow fever quarantine. Briefly stated these results were as follows: The proof that Finlay's conception that yellow fever is conveyed by a certain variety of mosquito (*Stegomyia fasciata* of Theobald) is correct. The demonstration that a certain time must elapse after the mosquito is infected before it can transmit the disease; that the causal agent is in the blood during the first few days of the disease, that it can be destroyed by heat, and that it can pass through filters which hold back some of the smaller forms of bacteria. The explosion of the old idea that the disease can be conveyed by fomites, unless these are of a character to allow of transmission in them of infected living mosquitoes. These are the main results, and they have led to greater accuracy in our knowledge of the incubation period of yellow fever, increased study of the yellow fever mosquito, and an entirely new conception of the prevention of the disease. Since the original work of Reed, Carroll, Lazear, and Agramonte several independent observers have confirmed their findings, notably Guiteras in Cuba, Marchoux, Salembini, and Simonds in South America, and the working parties of the

U. S. Public Health and Marine-Hospital Service in Vera Cruz, Mexico. The investigations carried on under the Public Health and Marine-Hospital Service have also supplied many details extending our knowledge of mosquito transmission, of the life history of the yellow fever mosquito, and of quarantine methods against the disease. Few discoveries in medicine have led to more rapid and more brilliant practical results that those above cited. The story of the remarkable change in the yellow fever history of Havana achieved by the work of Gorgas reads almost like a romance. When we consider that the annual number of deaths from yellow fever in Havana for the ten years preceding the establishment of the mosquito theory averaged about 500, and that under Dr. Gorgas' administration they were cut down in two years to nothing, we can enthusiastically echo the sentiments expressed in a resolution of the conference of State and Provincial Boards of Health, in which they say: "We regard (it) as one of the most brilliant achievements of the application of sanitary science to public health work ever accomplished." Judging from recent reports it seems likely that Gorgas will repeat his Havana success in the Isthmian Canal zone. We have still to discover the cause of yellow fever, and we have still to ward off its advances in our Southern States. So long as our Central and South American neighbors pursue their present lax sanitary methods we are liable to have sporadic outbreaks of the disease in those regions in which the *Stegomyia fasciata* can multiply. As Carter and Howard have shown, this mosquito is widely distributed in the subtropic portions of our country, and it behooves us to continue with the work of mosquito extermination, to increase its range as rapidly as possible, and to keep up with its oldtime strictness and quarantine vessels, especially sailing vessels, from infected ports. The protection of our land boundaries to the South will, of necessity, be much more difficult, and judging from the recent experience in Texas, it is by this route that infection is now most likely to reach us.

Malaria.—The soldiers returned from Cuba and Porto Rico, and later those from the Philippines, offered an opportunity for the study on a wholesale scale of certain aspects of malaria, an opportunity which was grasped by both military and civilian physicians. During and immediately following the Spanish War the accomplishment of greatest importance resulting from this study was the overthrow of the refuge of the careless diagnostician, typho-malarial fever. Those physicians who had studied malaria and typhoid fever carefully before the war, and who had controlled their diagnoses by blood examinations, had always been skeptical about the existence of combinations of the two diseases, and had published from time to time protests against the indiscriminate use of the term typho-malarial fever. It needed the studies of the camp fevers, however, to prove to the satisfaction of most physicians that the combination was exceedingly uncommon, and that when it occurred the malarial fever preceded, or more commonly, followed the typhoid fever. In his remarks on the subject, based on the examination of the blood of 159 typhoid cases at Camp Wikoff, Ewing says: "In no case of undoubted and established typhoid fever were malarial parasites found in the blood in connection with any of these sudden rises of temperature (in typhoid), but only at the onset of the disease or during convalescence," and later in his article, "In short, in spite of painstaking effort, the attempt to find a case of typhoid fever and active malaria progressing simultaneously was unsuccessful." Aside from this, the clinical study of the disease has received but few important additions since 1898, though mention must be made of the valuable studies of Craig on latent and masked malaria, studies which showed how great the danger to a community might be from soldiers returned from the tropics. In his article published in 1904 Craig states that 25 per cent. of the soldiers returning from the Philippines show latent or masked infections, and in a large percentage of these cases the parasite is the estivo-autumnal crescent, a stage of the organism capable of development in the mosquito. The same observer cites one company of 60 men in which 41 had parasites in their blood, and yet but 14 complained of illness.

As far as the parasitology of malaria is concerned, the past seven years have been marked by great simplification in staining methods, but discoveries of paramount importance have not been numerous. The studies of Craig on estivo-autumnal fever have tended to confirm the views of the Italian school as to the duality of its parasite, and the work of Ewing on the tertian parasite has thrown light on its early sexual history in the circulating blood. Working Party No. 2 of the Yellow Fever Institute has been able to show that at the time of the malarial chill there is present in the blood a toxin, and have been able to produce a chill by the intravenous inoculation of filtered blood extracted during the paroxysm.

The study of the distribution of the malarial mosquito has been carried on in a few places, in Boston by Theobald Smith, in the Valley of the Androscoggin by Jordan, and in Baltimore by Hirshberg and Dohme, but the amount of work which has been accomplished in this direction, and the time and money which have been expended in the attempt to exterminate the malarial mosquito, is almost infinitesimal when we consider the territory affected by the disease, and the losses resulting from it. Woldert estimates the annual financial loss in Texas alone at over $5,000,000, and if all the infected zones in the United States are considered the loss must be appalling. Like yellow fever, malaria is a perfectly preventable disease, but to stamp it

out requires either destruction of malarial mosquitoes, or protection and sterilization of infected individuals. In this country mosquito extermination has always been the favored plan, but before it can be accomplished a much more complete knowledge of the distribution of the *Anopheles* is necessary, and much more thorough education of the public as to the necessity of the work. The danger that the disease may be introduced into uninfected areas by soldiers returning from the tropics is a real one, though, as Theobald Smith has shown, it is unlikely that the estivo-autumnal parasite will be introduced into the Northern States. Still, we have plenty of Southern territory not yet infected, and the extermination of mosquitoes would prevent the possibility of such contamination. The question is one which has not yet been seriously considered in large sections of the country, but is, nevertheless, of the greatest importance.

Filariasis.—The work of Ashford in Porto Rico, and of Calvert in the Philippines has shown that filariasis exists in both places. In Porto Rico it is probably widely distributed, as Ashford found it in 30 out of 250 soldiers in the Porto Rican regiment. Cases of Gunn and of Brown have shown that infected individuals from this source have already reached this country. In the Philippines the extent of the disease is doubtful. Calvert found the filaria in only two out of 426 Filipinos, but it is to be noted that both of these individuals came from the same district, and it is likely that the disease is much more prevalent in some places than in others. In this country several domestic and imported cases have been reported since 1898. It seems extremely likely that the disease is much more common in the South than the literature would indicate, and that it is often overlooked. The fact that one man, De Sassure, of Charleston, was able to report 22 cases, most of them originating in the United States, is pretty strong evidence that the disease is much more prevalent than is generally supposed. It is certain that there are present in this country varieties of mosquito capable of transmitting the filaria. As these generally belong to the *Culex* family, which is widely distributed throughout the United States, it seems possible that there is real danger of new districts becoming infected by returning soldiers or Porto Rican laborers. Before the matter can be definitely settled we need more information as to the exact varieties of mosquito which can transmit filariasis, and their distribution in this country. At present it is quite generally assumed that a number of varieties of *Culex*, and at least one of *Anopheles* can transmit the disease. We believe it was Myers who brought forward evidence to the contrary, and the matter is one which needs further investigation.

Malta Fever.—The fact that Malta fever was present in Porto Rico was first demonstrated by Musser and Sailer, and later by Cox and Curry. In 1900 Strong and Musgrave called attention to its occurrence in the Philippines, and still later cases occurring in returned soldiers were described by Curry and Craig. The number of cases which have been described is small, and practically all of them are in soldiers and sailors. In the seven years which have elapsed since the first case was reported in this country, no case originating here has been described, and it seems that there is little likelihood of the disease becoming disseminated in the United States. It is within the bounds of possibility, as Curry pointed out, that it already exists in the Southern States. In its acute form it is easily confounded with malaria, and in its chronic stages it is generally diagnosed at first as chronic rheumatism. The serum reaction of the disease is so reliable, and the test is easy of performance, that all cases with doubtful fevers in the Southern States should be subjected to it. It seems highly probable that if this is done systematically the disease will be found to be present.

Trypanosomiasis.—The relation of trypanosomes to animal diseases was observed in the middle of the last century, and renewed interest has been awakened in these parasites in recent years by the discovery of new forms of animal trypanosomiasis initiated by the work of Dutton. The presence of the trypanosome infection known as surra among horses and buffalo in the Philippines was noted soon after the American occupation, and the results of American researches on this disease may be found in the valuable monograph of Musgrave and Clegg. Up to 1903 attempts to isolate trypanosomes in pure culture had been ineffectual, but in that year McNeal and Novy published the results of their work on the rat trypanosome. They were able to obtain the first successful pure culture of a pathogenic animal parasite with the absolute demonstration of its causal relation to the disease. Up to this time many observers believed that the different forms of animal trypanosomiasis were due to the same organism, but during 1903 and 1904, Novy, McNeal and Ward were able to cultivate the trypanosome of nagana or tsetse disease, and also that of Philippine surra, and could demonstrate that the parasites from these different diseases showed variations in structure and mode of growth. Later Lewis and Williams succeeded in cultivating the frog trypanosome, showing that this also differs from the other forms. Some forms of animal trypanosomiasis have appared in the United States, dourine having been observed in Nebraska. Whether there is any possibility of the introduction into America of human trypanosomiasis will be difficult to determine until we know more of certain forms parasitic in man, and the method of their spread. The form of the disease which is most likely to appear in this country, is the affection known likely to be found in the Philippines, and hence most in India as kala-azar or dum-dum fever. The parasite of this disease, usually spoken of as Leish-

man-Donovan body, has recently been shown by Rogers and Chatterjee to belong to a subfamily of the trypanosomes. The method of transmission of this form of the disease to man is not definitely known so far as we can determine; it is probably transmitted like nagana by an insect, most likely a mosquito. The possibility of its introduction into this country will probably depend on the presence or absence of some insect host.

Dengue.—A disease which does not seem to have received the study which it merits, considering its frequency, is dengue, or break-bone fever. The Reports of the Surgeon General of the Army for 1902 and 1903 show that in the Philippines it caused, in the former year, 31.67 cases of sickness per 1,000 of strength, and in the latter year 171.39 cases per 1,000 of strength. Presumably it has not been carefully studied in the Philippines, or in the South, where it also occurs, on account of its short duration, and the almost absolute lack of fatalities. In the Isthmian Canal Zone it has been studied in the last two years by Sutton and Carpenter. They have shown that it is probably not of the malarial class of diseases, but that it may, as Graham claimed, be transmitted by the mosquito. Their studies of the blood show that it is one of the diseases accompanied by leucopenia and relative lymphocytosis, and their bacteriologic studies suggest that a bacillus similar to the influenza bacillus may be the cause. The disease is one which, judging by its history, is unlikely to spread beyond the southern parts of this country. It is worthy of more extended study by modern methods than has yet been devoted to it, and American physicians in the Philippines and the Isthmian Canal Zone will probably have excellent opportunities to clear up many moot points in connection with this disease.

Asiatic Cholera.—During 1902 Asiatic cholera appeared in Manila, spread to the neighboring islands, and caused over 90,000 deaths before it was stamped out. The incidence of the disease among the whites was comparatively small, but among the natives it ran rife, owing to their lack of hygienic precautions and the favorable temperature conditions. In many instances the disease was not carried, as usual, by contaminated water, in fact, in the large cities indirect contact through food was a much more frequent method of spread. On account of the violent local reaction produced by Haffkine's cholera prophylactic the natives objected to its use, and as the scattered distribution of the population made it almost impossible to control them, this method was given up. The objections to Haffkine's prophylactic lead R. P. Strong to attempt the production of a protective serum lacking in the irritating properties of those hitherto used. By a process of bacterial autolysis followed by filtration of the culture he was able to produce a practically non-irritating protective. From the experimental standpoint Strong was able to show that animals and men treated by this method showed but little local reaction, yet developed in their blood substances strongly bacterial to the cholera spirillum. As the cholera had practically disappeared from the Philippines at the time that Strong's work was completed there has as yet been no opportunity to put his method to a practical test. From what we know of the disease there is little likelihood that it will ever get a foothold in this country under our present quarantine regulations.

Plague.—The appearance of plague in several parts of the civilized world in 1900, and especially its appearance in San Francisco and Philippines, called the attention of American medical men to this disease. Luckily, but few of them had an opportunity to study it, and most of the American work on this disease has been done in the Philippines, where, according to Munson, 970 cases with 812 deaths occurred between January, 1900, and September, 1903. It cannot be said that anything startlingly new was discovered during this period, but a good deal of valuable confirmatory work was turned out. In this connection must be mentioned the work of Barker, Flexner and Novy on various aspects of the subject, the work of Calvert and Ewing on the occurrence of plague bacilli in the circulating blood, and the work of Herzog and Hare on latent and ambulatory plague. The outbreaks of the disease in Australia, in Honolulu, in Glasgow, and in San Francisco have served to warn us of the necessity of being constantly on guard against its insidious approach. The recent outbreak in Leith, in which, as in the San Francisco outbreak, the origin of the disease was in doubt, shows us that at all our seaports constant vigilance must be maintained, and this must be the case so long as endemic foci are present in Asia. In the preventive work in this country, in this as in other infectious diseases, too much praise cannot be given to the officials of the U. S. Public Health and Marine-Hospital Service who, besides having to bear the burden of their appointed work, have often also to suffer the slings and arrows of outrageous politicians, and the contumelious taunts of misguided citizens.

Conclusion.—We have now considered the more important of the tropical diseases which occur in Porto Rico, the Philippines, and the newly acquired Isthmian Canal Zone, the effects which their study has had on American medicine, and the chances of their becoming domiciled in this country. It has been possible to touch on many important subjects but lightly, and I ask your indulgence for the sketchy manner in which the subject has been treated. Of necessity a number of tropical diseases have not been mentioned, tropical ulcer, frambesia, bilharziasis, and blackwater fever, for example. These diseases are all present in our tropical possessions, but are of relatively minor importance, and as yet have received but little attention from American observers. Two general conclusions are forced on

us as a result of this study, one being that many of the so-called "tropical" diseases are widely scattered through the subtropical portions of this country, the other that the acquisition of tropical possessions by the United States has had a markedly stimulating effect on American medicine, and has led to valuable work, some of it of the very first rank, all of it showing evidences of earnest and painstaking effort.

ORIGINAL ARTICLES.

THE TREATMENT OF DIARRHEA IN CHILDREN.[1]

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Lack of precision in terms is the root of confusion in treatment.

Dysentery, an infectious, contagious, epidemic, water-borne disease; characterized by tormina and tenesmus, and by blood and pus in the stools, is not included.

Diarrhea with blood and mucus in the stools is often erroneously denominated dysentery. By no process of extension, transition or evolution does diarrhea ever become dysentery, as is now authoritatively stated, with no credible basis. For dysentery there must be specific infection—a specific micro-organism.

If a child with diarrhea contracts dysentery, there are two entirely distinct, coexisting diseases in one patient; they are as distinct as they would be if they occurred in two patients.

This definitive elimination clears the decks for *decisive, direct* therapeutic action.

During seventeen summer weeks in 1903, Brooklyn and Manhattan had 2,755 deaths from diarrhea; during the same period in 1904, 3,810 deaths. A notably cool, salubrious summer, registered a death-roll from a minor affection, which not only unsettles and staggers the practitioner, but also casts a shadow across our science.

Mr. President, this is an effaceable mortality column.

Diarrhea is purely a food disorder. Therefore, preventable. At inception, prompt, appropriate treatment, unfailingly arrests it at once. Therefore, it should never be fatal. It registers more deaths than all the contagious exanthemata combined. Mismanagement of feeding is the cause.

In young infants, barley water, rice-water, egg water, etc.; in older children, animal broths, continued until vitality is at such an ebb that there is fatal collapse, have produced a mortality record from a simple local irritation, which is not only infamous, but iniquitous.

The marvel of this complaint is the simplicity of successful management, viz., removal of the cause, feeding adapted to the condition.

1 Read before the New York County Medical Society at the New York Academy of Medicine, May 22, 1905.

Removal of Cause.—Fermenting food (soon putrescent), a lurking menace, must be ejected promptly, radically, entirely, to prevent a mere local affection becoming a profound constitutional infection, *through the great activity of the intestinal absorbents.*

Difficulty of Removal of Cause.—Numerous transverse folds in the intestine, two inches in length, two-thirds of an inch in depth (for impending propulsion of food and expanding absorbent area), make it difficult to dislodge and drive out the putrefying, irritating material.

The instrument of eviction must be as searching, as scouring, and as potent as a chimney sweep or a scavenger.

The cause, milk curd, sour milk, unripe or overripe fruit, fruit skins, bolted boluses, morsels of sweets, sausage, cheese, cabbage, sauerkraut, etc. (entrapped under, concealed and shielded by an intestinal food—*enhance physiological, accentuate pathological processes*); the cause thrust out, the irritated parts must have a period of rest—unconditional, absolute, motor and chemical.

Being the food-path does not debar literal observance of this first therapeutic law—punctiliously enjoined, jealously, religiously enforced, as in other irritated and inflamed structures.

Rest must be assured, unquestioned because unquestionable, until fermentation ceases, and the injured and irritated mucous membrane at all points and in all valvular pockets has healed.

It is prerequisite, therefore, during this transition stage, or period of probation, that nothing be allowed to pass through the digestive tube but water.

While there remains any trace (cause or consequence) of the original disturbance, food is as a spark in a powder magazine. In this functionless state the blandest nutriment eternizes fermentation. Escape from mortal issue is cut off. Feeding while disorder lingers is fatal error.

The only adequately exploring, extruding agent is castor oil.

To a child of three months and of six months, one teaspoonful; to a child of nine months and of one year, a desertspoonful; to a child of one year and a half and of two years, one tablespoonful. The oil must be ice cold.

For two hours before and two hours after, nothing else must go into the stomach—not even water. If the oil is rejected the same dose must be repeated in one hour.

Not infrequently an irritating mass is incarcerated in a valvular pocket. To abate spasm and liberate this, opium is indispensable—a solid, hardened dejection then passing downward carries with it the released material. Opium has obviated sepsis!

The only legitimate use of opium in diarrhea, is for the surrender of imprisoned, decomposing, septic material. If this remains, the issue is fatal.

After the detergent, cleansing, purifying action of the oil has *ended*, for at least another twenty-four hours only water is to be given. In severer cases thirty-six, forty-eight, sixty, or even seventy-two hours must elapse before the maimed intestine can be safely intrusted to perform any digestive function. Feeding while disorder lingers is fatal error.

In young infants hot water, and from a bottle, is preferable. Where there is great irritability of the stomach hot water is more soothing than cold. Some infants, and most older children prefer cold water. Heed preference. When there is high temperature cold water is grateful and of therapeutic value. Very hot water from a dropper, three or five drops on the tongue every fifteen minutes, is at times magical in its effect in checking vomiting.

The rest and restoration period over, the pivotal part of the management begins, namely, feeding. The food must be a modified and weakened form of that which is physiological for a well child of the same age. Unphysiological feeding is unmitigated egotism. He is indeed a hopeless pigmy who places his fallible opinions and conclusions above Nature's infallible laws!

To give barley water and dextrinized cereal to a young infant in health or disease, is such express contravention of physiology as to be stultifying.

This incomprehensible blunder has lowered the colors; shattered faith which should be unbound, unassailable.

Feeding.—Proteid excess is the eminent peril of the young child in summer; it is pre-eminently of evil repute when digestion is disordered or enfeebled. Proteid excess has placed an unwarrantable, an utterly indefensible ban on milk feeding in diarrhea; foisted in the proprietary banes; the illogical, inane and pernicious dextrinized cereals.

After clarifying with oil, flushing and sweetening with water, milk, with the proteid content minimized temporarily, later strengthened under clear insight, is the only sure, safe, ever unfailing resource in diarrhea in a child under one year.

The auspicious moment for food having arrived, written instructions—never verbal—are to be placed in the hands of the child's attendant.

Feeding a Child of Three Months with Diarrhea.—Take the *upper one* ounce of cream from a quart bottle of milk which has been standing on ice for sixteen hours from the time of milking. (Immediately after milking, the milk must be put in the regulation quart glass milk jars of commerce, and placed on ice for sixteen hours before lifting the cream.) In metropolitan centers the milk bottles must be kept on ice for six hours after they are delivered in the morning by the milkman. It is not possible to secure the top ounce of cream by any device other than with the keel-shaped dipper of the Noël Nursery Table.

This one ounce of cream must be kept on ice until it is to be used. Mix one teaspoonful of this cream with one ounce of cold, unboiled, filtered water, and then add two teaspoonfuls of lime water. Of this mixture give one ounce every four hours.

Midway between each feeding, the baby is to be given water from a bottle, hot or cold according to taste, one or two ounces as desired (food and water alternating every two hours). Filtered unboiled water is always to be used. This feeding is to be continued for at least twenty-four hours.

If at the end of twenty-four hours of such feeding there is evidence of intestinal fermentation, the same feeding is to be continued for another twenty-four hours. If, however, at the end of the first twenty-four hours of this feeding the child is doing well, with no indication of disturbance of digestion, the one ounce of food prepared as above is given every two hours, and the water discontinued.

It is of great importance to bear in mind that digestion is not *only* a chemical, but a mechanical act as well. *Not one drop of water is ever absorbed from the stomach*, therefore, when water is put into the stomach there must be the same amount of muscular contraction as for food, in order to force it into the intestine where it is absorbed.

This mechanical act alone may cause exhaustion of the nervous centers. Many well children are made ill by giving water too frequently; many ill children are kept from recovery by the same mismanagement. Frequent muscular contraction of the stomach from water too frequently given causes atony of the stomach and inability to carry on digestive processes.

At the end of the second twenty-four hours of feeding at two-hour-intervals, of one ounce of the above composition, if the child is perfectly well, and evidently not satisfied—as it probably will not be, the quantity but not the strength, is to be increased. Now give 1½ ounces every two hours.

At the end of another twenty-four hours, if digestion is good, the strength is increased. Here lies the most important point in the management. Continue to use the upper one ounce of cream from the top of a quart bottle of milk, and in order to get sufficient quantity for the twenty-four hours' use, take the top ounce from two, or possibly three quart bottles of milk, that a minimized proteid food may be secured.

Use two teaspoonfuls of this cream to 1½ ounces of cold, unboiled, filtered water, and to this add one-half ounce of lime water. Of this stronger food give two ounces every three hours.

After two days of this feeding, if the patient is in every way doing well, the food may be strengthened by taking the upper two ounces from one, two, or three quart bottles of milk sixteen or more hours after milking. Of this, use at each feeding one-half ounce, mixed with two ounces of cold, unboiled, filtered water, and

add to this one-half ounce of lime water. Give three ounces of this every three hours, seven feedings in the twenty-four hours.

From this time the changes are made very gradually until the food is of normal strength for a child of three months. It must be borne in mind, however, that after even a slight intestinal disturbance, the predisposition to enfeebled digestion remains until the end of the summer period. The food must be of *low proteid* until the cool autumn weather.

Feeding a Child Six Months of Age with Diarrhea.—Take the upper *one* ounce of cream from each of *two* quart bottles of milk sixteen or more hours after milking. Of this cream use *two teaspoonfuls* mixed with 1½ ounces of cold, unboiled, filtered water, and then add three teaspoonfuls of lime water. Give a six-months-old child 1½ ounces of this food every four hours, alternatively with 1½ to 2 ounces of water every four hours.

This older child will probably require a larger amount of liquid, and consequently it will be necessary to give a larger quantity of water every four hours. A six-months-old child with better muscular development, may take with impunity a larger quantity of water than a three-months-old child.

At the end of twenty-four hours of this feeding, if all evidence of disturbed digestion has disappeared, prepare the food as follows: Take one-half of the upper *one* ounce of cream, mix this with three ounces of cold, unboiled, filtered water; to this add one-half ounce of lime water. Give three ounces of this every three hours, the water which has previously been given to be discontinued. If the three ounces do not satisfy, and the baby must have more liquid, water should be given immediately after feeding, but not between feedings. Water must not be given in the intervals of the three hours. This would keep up continuous muscular contraction and again lead to exhaustion. There must be a rest-period of three hours.

This régime should continue for about forty-eight hours, when the food may be strengthened by taking the upper two ounces from each of three quart bottles of milk sixteen or more hours after milking, or in town six hours after it is delivered in the morning by the milkman.

Of this two ounces, use for each feeding one ounce, mixed with 3½ ounces of cold, unboiled, filtered water, and then add one ounce of lime water. Give four ounces of this every three hours. At the end of twenty-four hours, if digestion is normal, 4½ to 5 ounces may be given every three hours; seven feedings in the twenty-four hours.

After three days of this feeding, the food may be strengthened by taking the upper four ounces from each of two or three quart bottles of milk sixteen or more hours old. Of this four ounces use for each feeding 1½ ounces, mixed with 3½ ounces of water, and one ounce of lime water. Give this quantity every 3½ hours; six feedings in the twenty-four hours. After two or three days of this feeding, the food may be gradually strengthened until it is of the strength for a child of six months. It should then be given every four hours; five feedings in the twenty-four hours.

Feeding a Child Nine Months of Age with Diarrhea.—The management is the same, except that the quantity, not the strength, is increased more rapidly, owing to the greater bulk required in a nine-months-old child.

Minimized proteid must not be relinquished: This abides as the supreme disideratum.

Feeding a Child in Second Year with Diarrhea.—Feeding which has thus far fulfilled each and every and all physiological and pathological indications, would now be fundamentally defective. The older child must have higher proteid.

The crippled organs cannot utilize higher milk proteid. Nothing is more intolerable to them. Vegetable proteid is now logical, valid, prerequisite, imperative.

Physiology dictates the addition of cereal to the food of a normal child at the sixth or seventh month, but the secretions for its digestion are not sufficiently developed to justify its use as the exclusive food in diarrhea, until about the twelfth month.

The anomalous mortality from diarrhea in young infants is artificial, and has as its principal cause the abnormal and singular use of cereals. In older children there is a spurious mortality superinduced by the misemployment of animal broths. Stress of diarrhea and growth make demand for constructive material paramount. Animal broth is destitute of constructive element; rich in extractives which stimulate metabolism while it should be conserved—the child wastes rapidly. Death ensues from a general starvation of every part. The young infant dies from inanition with angioneurotic edema on vegetable proteid, because he cannot utilize it. To parallel this, the older child is given as aliment that which is characterized by destitution of constructive element.

The pronounced tendency to renal determination is intensified by the rich content of muscle and bone extractiveness in broth. Physiological and pathological studies furnish final negatives; bedside reflections make them abhorrent.

Beef juice must be eschewed and interdicted. It causes the stools to become putrid, foul-smelling; looseness is aggravated; the delicate nervous organization overstimulated—every phase of the disorder is accentuated.

Vegetable proteid is the only tissue-forming material which the disqualified organs can utilize.

Cereal checks looseness, repairs waste, vitalizes languishing functions. Cereal is indispensable to the successful treatment of diarrhea in the second year. It must be the sole food in diar-

rhea from the end of the first year, with its use recovery is rapid, complete, perfect, permanent.

If a child is bottle-fed, the cereal should be given in the form of a gruel and from a bottle. If spoon-fed, the cereal should be given hot, and with a little butter and salt; never with cream or milk, and never with broth or beef juice added. It must not be given with sugar.

For a child of one year, give four ounces of gruel every four hours, five feedings in the twenty-four hours. If this quantity does not satisfy, water may be allowed midway between feedings. As this older child has better muscular development, water between feedings does not cause the same amount of exhaustion of the vital forces and of the nervous centers. There is, however, a limit, and great care must be taken that the child is not allowed quantities of water at frequent intervals.

The cereals of greatest value and most to be depended upon in diarrhea in the second year are barley (whole or pearl barley), Imperial Granum, arrowroot, rice, cream of wheat. They must all be cooked with water, never with milk.

Imperial Granum and arrowroot should be cooked thoroughly for one-half hour; pearl barley, three hours; rice, one hour and cream of wheat, one hour. They should all be salted as for the table, while cooking.

Barley, rice and cream of wheat should be strained. Imperial Granum and arrowroot need not be. The last two should be cooked fresh for every feeding; the others cooked fresh every twenty-four hours and kept in the refrigerator until needed. They should be served hot.

Mothers, nurses, and even physicians often say a child refuses cereal. Wait! Hunger soon compels them to accept it. A child never starves because the dictum of the palate is not subserved. Only that food which is sustaining and curative is ever permitted. When tissue-hunger makes demand, it is taken readily; until that time it is not needed.

The channel purified of sewage and made sanitary, the management and feeding prescribed and proscribed proves consummate, without fault or blemish, with no dark side—every case of acute diarrhea is well within one week.

Feeding of Neglected and Mismanaged Cases from Three to Nine or Ten Months of Age which Have Become Subacute or Chronic.—Cases that have been ill for weeks, possibly for months, until there is a chronic disease of the intestines, are the troublesome, stubborn, unmanageable ones, and are the cases that swell the death-rate. In this extremity, a happy consummation expiates the promulgation of a heresy—an unorthodox food. I have proved condensed milk in this class of diarrhea, with the result that conviction, and conscience compel recognition and advocacy.

In these neglected cases one of two things will save life—breast milk or condensed milk. A bottle-fed child of six or eight months can seldom be induced to take the breast.

With profound apprehension of the evil effects from the prolonged use of condensed milk; and despite prescience of consequent vehement criticism, I prescribe condensed milk in subacute and chronic diarrhea in young infants, inasmuch as it is the only food, except breast milk, that will save life.

For temporary uses in such cases it does incalculable good; its prolonged use does incalculable harm. Condensed milk may be made beneficial or baneful, conformable to its use or abuse. Judiciously used it will save life where nothing else can. Injudiciously used it is a prolific source of disease. I would not advocate its use had I not an experience of years during which it has not once failed me.

The clinical fact that infants who have been continuously fed on condensed milk for any prolonged period have an abiding predisposition to diarrhea of fatal type, does not deter me from having recourse to it in the restricted manner indicated, and in the cases alluded to, which I am confident are to become less frequent in the near future, owing to improved management, and rational, logical, physiological feeding.

How to Use Condensed Milk.—For a baby three months of age with subacute or chronic diarrhea, take one teaspoon level full of canned, sweetened condensed milk (scrape off the undersurface of the spoon), put it into a china vessel, add to this with a teaspoon, twenty-four teaspoonfuls of water which is actually boiling. One ounce of this should be used for each feeding. (The rest to be thrown away. Prepare fresh for every feeding).

After cooling to temperature for feeding, add two teaspoonfuls of lime water to one ounce of the mixture, and give this quantity (one ounce and two teaspoonfuls), every four hours.

This should alternate with one ounce of hot water and two teaspoonfuls of lime water, every four hours. (Water and food alternating every two hours.)

At the end of twenty-four hours of this management, the movements become less frequent and improve in character. After forty-eight hours, if improvement has progressed, the quantity may be increased to two ounces every four hours, with one-half ounce of lime water added. Alternate this with two ounces of hot water and one-half ounce of lime water.

After forty-eight hours of this management, if the movements have become normal, two ounces of the condensed milk mixture with one-half ounce of lime water, is given every two hours, and the water discontinued.

One week later, everything being normal, the food is strengthened by making it one teaspoonful to sixteen, or two, to thirty-two of boiling water. Give three ounces of this mixture, with one-half ounce of lime water, every three hours. This strength is not exceeded—one to sixteen—at any period during the condensed milk feeding.

The effect of this feeding is so miraculous in infants apparently hopelessly ill, that it is difficult to induce mothers or nurses to discontinue it when the patient has recovered. It is quite impossible to bring any mother who has experienced the effect on a prolonged, seemingly hopeless, case of diarrhea to a discontinuance of the use of condensed milk. The responsibility of the physician is great. The condensed milk must be stopped or that which saved the child's life will later lead to scurvy-rickets and to irremediable deformity.

Discontinuing Condensed Milk.—With the advent of propitious autumn weather, if digestion, movements, and appetite are good, condensed milk should be supplemented gradually, surreptitiously.

Instructions.—Take the top ounce from a quart bottle of milk, which has been standing upright on ice for sixteen hours from the time of milking, or in town six hours after it is received in the nursery. Keep this one ounce of cream on ice until needed. One teaspoonful of this cream is added to every *second* bottle of the condensed milk food, just before feeding.

After three days of this feeding, if the stools are normal, and the appetite good, one teaspoonful of cream is added to *every* bottle. One week later, or ten days from beginning the addition of cream to the bottle, if the appetite and movements are good, *two* teaspoonfuls of cream (top ounce from two quart bottles), are added to *every* bottle.

After continuing this feeding two weeks, the condensed milk is gradually lessened, the top cream gradually increased. It now becomes important to take more from the top of each quart bottle of milk in order that there may be a slowly increasing percentage of proteid in the food.

Feeding in Subacute and Chronic Diarrhea in the Second Year.—With cereal as the only food every case comes under control in a surprisingly short period.

In a bottle-fed child barley (whole barley) gruel, four to six ounces every four hours—five feedings in the twenty-four hours. If spoon-fed, cereals served hot, and with butter and salt every four hours—five feedings in the twenty-four hours. All other food is interdicted. Cold, unboiled water is allowed freely.

Irrigation.—This is an abused, overwrought treatment. Abdominal distention and mortal collapse consequent upon high, large, frequently repeated irrigations are unfortunately often encountered.

To supplement the action of castor oil it is sometimes expedient to irrigate on the first day. Repeated irrigations are exhausting and seldom advisable. These precepts are founded on the rock of experience. Administered faithfully, they will bring the frailest, disease-tossed, bark safely, securely to the harbor of health.

25 West Thirty-seventh Street.

TWO CASES OF EPILEPSY, THE RESULT OF GASTRO-INTESTINAL DISTURBANCE.*

BY FRANK H. MURDOCH, M.D.,
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Regarding the pathogenesis of epilepsy a well-known author has recently expressed himself as follows: "For some years the writer has been impressed with the facts forced upon him, not only as the result of the study of his own cases, but by the accumulated researches of Raymond Petit, Voisin, Smith and Herter, Mott and Halliburton, and later by Carlo Besta, and other Italian investigators, that toxemia enters more largely than is generally supposed into the pathogeny of epilepsy, and this is apparent, as Voisin has pointed out, in the general resemblance and mode of occurrence between the epileptic attacks, and certain ordinary forms of poisoning in which the nervous system is affected. In such cases the element of convulsion, and the mental disturbance have features in common, and it would appear that the occurrence of the fit betokens the accumulation in the body of some particular toxic agent, the unwelcome presence of which gives rise to a convulsion when the point of cell-tolerance has been reached. He also states that autotoxemia may occur in three different ways. First, in the existence of a toxemia of gastro-intestinal origin, which was described originally by Bouchard, and later by Herter and Smith, as well as by the author just quoted. Second, by the introduction of certain familiar cocci into the circulation, and third, the presence in the blood of a specific poison called cholin." [1]

The cases which I wish to report were due to autotoxemia, one resulting from disturbance in the stomach, and taking the form of *petit mal*, the other being associated with intestinal disturbance, and taking the form of *grand mal*.

Case I.—Miss M. S., aged eighteen years, consulted me on June 21, 1904, and gave the following history: A year and a half ago she began to be troubled with vomiting during or immediately after meals, occasionally through the day, she suffered from attacks of nausea, and often at such times vomited a very sour fluid. Six months ago she lost consciousness for a few moments while at church, and similar attacks have been coming on with increased frequency ever since, so that for the last two or three months she has had an average of two or three attacks a day, and during the last two days she has had eight or nine attacks each day. There is a distinct aura which begins in both heels and passes up the posterior aspect of the legs, then along the spine, and when it reaches the lower dorsal region she experiences intense nausea, and endeavors to induce vomiting by passing her fingers as far back over the root of the tongue as possible. Simultaneously with the nausea she loses consciousness, for after the attack she has no

* Read at a meeting of the Gastro-Enterological Association, in New York, April 24, 1905.

recollection of having made an attempt to induce vomiting. She looks pale, and has lost twelve pounds in weight. Her menses are scanty and irregular. Appetite poor, bowels regular, bad taste in the morning. Inflation of the stomach shows that its lower border reaches the navel, and the right kidney is movable in the second degree. The gastric secretions are normal. The urine is acid, and contains neither sugar nor albumin. Her stomach in the morning before she has eaten anything, contains a large quantity of mucus mixed with bile. The treatment consisted in proper diet, iron and arsenic, and gastric lavage. It is a remarkable fact that after the first washing out of her stomach the epileptic attacks ceased, and I am glad to say, did not return. She spent the summer in the mountains, being careful as to her diet, taking the iron and arsenic, and washing out her stomach two or three times a week. I saw her on October 11, 1904, and she had gained ten pounds in weight, her menses were regular as to time, and sufficient in quantity, and in fact she was enjoying excellent health.

Case II.—On October 7, 1901, Mr. A. D., aged thirty-two years, merchant tailor, consulted me and gave the following history: Two years ago he began to suffer from frontal headaches, after the headache had lasted for three or four hours he began to vomit a greenish bitter fluid mixed with food particles. The vomiting continued for twenty-four or forty-eight hours, during which time he had to keep his bed. After the attack he felt quite well for three of four months, then, without any apparent cause, the headache and vomiting would return. Lately the attacks have been coming on every month. On the night of September 1, 1901, he vomited after having retired, but lay down and went to sleep again. Soon after, he woke a young man who happened to be sleeping with him that night, by having a violent convulsion. His friend went for a physician who was of the opinion that the attack was epileptic, as the patient was unconscious, had foam on his lips, and had bitten his tongue. On October 1, during the day, he had headache and vomiting, but no epileptic attack. His appetite is poor, bowels constipated. Examination shows that the apex beat is displaced, being 2½ inches below, and 1 inch within the nipple line; liver normal, stomach and intestines contain much gas. When the stomach is inflated with air the lower border reaches a point 1½ inches below the navel, and the ascending colon is considerably dilated. The gastric secretions are normal, free hydrochloric acid being + 32, total acidity, 68. The urine is acid, specific gravity, 1.020, and contains neither sugar nor albumin, but indican in excess. Treatment consisted in a regulated diet, and flushing the colon every day with normal salt solution. After beginning treatment the patient had no more headache or vomiting, and no further epileptic attacks. Now, it is impossible to tell whether this patient had more than one convulsion or not, for, as is well known, when attacks come on at night a person may be epileptic for years without knowing it.

In regard to diet in epilepsy, Hamilton[2] says, "I have no reason to change my opinion, advanced nearly thirty years ago, and which has been shared by others, that an excessive nitrogenous diet is apt to aggravate the disease. Merson, adopting the idea of Hughlings Jackson, that it is the nitrogen that leads to explosiveness and instability, conducted a series of experiments at the West Riding Asylum, which showed that a meat diet, not only produced a dull languid condition with an increased temperature, but that the attacks were more frequent." Burney Yeo[3] is of the opinion that epileptics should not have meat more than once a day, and at the Craig Colony for Epileptics in New York, patients are allowed meat once a day every day in the week except Friday.[4]

It has been my experience that patients with achylia gastrica do better on a diet from which red meats have been excluded, while in hyperchlorhydria the reverse obtains. It would be interesting to know the state of the gastric secretions in those epileptics in which the disease is aggravated by a nitrogenous diet.

Of the several forms of diet recommended in epilepsy, Turner[5] has found that of salt starvation the most satisfactory. The chief feature of the method lies in the diminution of the bromide dose, from 20 to 30 grains of one of these salts at bedtime being sufficient.

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THREE ADDITIONAL CASES OF PRIMARY SARCOMA OF THE STOMACH.[1]

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YOUR president has been kind enough to permit me to report three additional cases of primary sarcoma of the stomach, not as a paper, but as a postlude to the very interesting and instructive study which Dr. Manges has just presented to us. I feel somewhat embarrassed to present these cases to you in this abbreviated and superficial way, for I believe that they and the subject warrant an extended study, but in the few days in which I have had notice of your indulgence I have had time to extract in a very brief way only, the most essential notes on the cases which I hope to discuss more fully at some future time when I shall be better prepared on the subject which Dr. Manges has so opportunely brought to our attention.

1 Read before the Gastro-Enterological Society, April, 24, 1905.

Case I.—J. M., female, aged fifty-seven years. The patient entered the hospital in a delirious condition, at times she cleared up somewhat, but was not mentally competent at any time. Friends stated that she had been alcoholic since the age of fifty. Previously she had always been in good health until within the past two months, when she commenced to lose strength and appetite. Her only complaint has been of general weakness. Temperature on admission, 99° F., pulse 86, respiration 24.

The physical examination was practically negative, except for the following conditions—pulse, weak, regular, considerable degree of arterial disease and tension.

I saw the woman several times but was never able to make anything definite out of the case, other than general arteriosclerosis and senility. The extreme emaciation and a peculiar brownish pigmentation of the skin, at one time gave rise to a question of Addison's disease and Dr. Lambert, under whose care she was, insisted throughout that the condition was one of new growth cachexia, though careful examination, particularly of the flaccid abdomen gave no hint as to its location.

Milk only was supplied for nourishment, this was retained and apparently fully digested. No gastric tenderness or tumor was present. Whisky and strychnine were administered from time to time, but the weakness and emaciation steadily increased. After she had been in the hospital fourteen days, she vomited one night, four to six ounces of blood-stained material. This was not saved by the nurse. In the morning a small amount of coffee-ground vomitus was also discharged. The patient at this time was seen to be moribund and she died within a few hours.

Abstract of Protocol.—General appearance—Emaciated and senile. *Heart*—Brown atrophy; aneurismic dilatation of the sinuses of ascending arch. Marked coronary sclerosis; moderate arteriosclerosis of arch of aorta. *Thyroid*—Left lobe contains an encapsulated mass, thought to be an adenoma. *Lungs*—Chronic miliary tuberculosis of apices. *Lymph nodes*—Large, anthracotic and tuberculous. *Liver*—Fatty degeneration and chronic congestion. *Spleen*—Old-healed infarctions. *Pancreas*—Negative. *Stomach*—There is an hour-glass constriction 5 cm. from pyloric ring. Both the upper and lower curvatures of the stomach show thickening of the walls without definitely circumscribed tumor formation. In places the mucous membrane lies free over the surface of the new growth, but in other places the mucous membrane is sloughing and is replaced by a layer of mingled blood clot and necrotic tumor material. The stomach as a whole is small, and except for the ulcerated areas its mucosa is free and anemic. *Intestine*—The intestine is adherent, in a few places, to the peritoneum and in these areas minute tubercles are found, supposed to be recent tubercles, corresponding to these points internally, minute ulcerations of the intestinal mucosa are seen in a few places. These ulcers are thought to be tuberculous. *Adrenals*—Negative. *Kidneys*—Chronic interstitial nephritis. *Genital organs*—Atrophic. *Blood vessels*—The inferior vena cava presents a dilatation filled by recent thrombus located just above the bifurcation. The descending aorta and the large trunks of the abdomen and pelvis show marked arteriosclerosis.

The gross anatomical diagnosis was senility, complicated by gastric carcinoma and adenoma of the thyroid gland with healed pulmonary tuberculosis terminating with thrombosis of the inferior vena cava.

Greatly to my surprise microscopical examination showed that the gastric growth was a small round-cell sarcoma, apparently originating in the stomach wall. The minute nodules found in the peritoneum were also found to be sarcomatous.

Case II.—The case was that of a male, fifty-seven years of age, a baker by occupation. He first came to me complaining of pain just above the umbilicus. His previous and family history were good and gave no hint as to the nature of the present trouble. At times paroxysmal vomiting occurred, usually when the stomach had been overloaded. The vomitus never contained blood.

The man was a large and powerful German, very well nourished. Examination of chest and abdomen gave only negative results, perhaps due to the large amount of abdominal adipose. Hemoglobin, 65 per cent. No hyper-temperature, pulse and respiration normal. He was given a simple rhubarb and soda mixture and was advised as to diet.

Two months later he returned showing marked emaciation, so that palpation of the abdomen was now an easy matter. He still complained of abdominal pain, sometimes very severe and cramp-like in character. He had become very weak, extremely pale and had lost flesh in a truly astonishing manner. He had no desire for food and even fluids were followed by extreme distress.

Palpation of the abdomen disclosed a firm globular mass in the hypochondrium a little to the right of the median line. Inflation of the stomach and ausculatory percussion demonstrated the mass to be apparently attached to the stomach, which was not, however enlarged. Considerable tenderness was present over the mass. Examination of the gastric contents, after a test meal, showed delayed digestion, and apparently more or less pyloric stenosis. Both free hydrochloric acid and lactic acid were found in small amounts. No blood was found and the Boaz-Oppler bacillus was not present. The patient was given a solution of dilute hydrochloric acid and was placed exclusively on a milk-diet. He was seen frequently. Considerable gain of weight and improvement of symptoms was made under this treatment but no decrease in the size of the tumor was observed and he was strongly

advised to submit to an exploratory laparotomy. This was performed at the Hood Wright Hospital by Dr. Lucius Hotchkiss.

The pyloric extremity of the stomach was found to be involved for a distance of about 10 cm., by an infiltrating growth, subperitoneal, but of such extent, that considering the condition of the patient, it was not thought prudent to attempt enucleation or other operative procedure.

The patient died about ten days after the operation and, as we were unable to obtain an autopsy, the house surgeon, Dr. Hanscome, made a thorough exploration of the abdomen through the operation wound and removed portions of the various viscera for examination.

The growth was found to be both submucus and subserous, infiltrating between the walls of the stomach. Microscopical examination demonstrated it to be an angiosarcoma. No metastases were found in any part of the body, though, as I have stated, a complete autopsy was not performed.

Case III.—R. L., female, about fifty years old. Entered Gouverneur Hospital, July 4, 1904, in the service of Drs. Huddleston and Braunlich. Two years ago she had attacks of flatulence, diagnosed as "catarrh of the stomach." There was pain after eating, sour taste in the mouth and similar symptoms. Eight months ago she began to lose flesh and strength. She had occasional attacks of pain over the epigastrium and vomited once in a while, but she had never ejected material resembling blood. On two occasions she was at Mt. Sinai Hospital where a diagnosis of gastric carcinoma is said to have been made. During this time she twice vomited blood.

The emaciation and asthenia have constantly increased, so that the patient is now bedridden and has developed bed sores. She is extremely anemic, has fever at times and is much troubled with constipation.

Inflation of the stomach demonstrated the lower border to be two fingers breadth above the umbilicus. Although abdominal walls were very thin, owing to the great emaciation; no gastric tumor could be demonstrated and gastric tenderness was doubtful.

The general appearance was that of a woman of medium height, extremely emaciated and of poor muscular development. The skin was very pale and of a waxy appearance. She had an expression of anxiety and suffering and was very apprehensive of being given pain.

Examination of thorax was negative except for marked emaciation. There was slight edema of the left leg, but otherwise the extremities were negative. Examination of the abdomen on many occasions always gave absolutely negative results. Vaginal and rectal examinations were also negative.

Frequent examination of the stomach contents showed the constant presence of free HCl and also of lactic acid. The Boaz-Oppler bacillus was present.

The anemia was profound and the hemoglobin finally sank below 10 per cent., as determined with Dare's instrument; the red-cell count below 1,000,000, and the blood presented the characteristic picture of a very grave secondary anemia. The urine constantly showed the presence of slight traces of albumin and occasionally considerable numbers of casts were found. The weakness, emaciation and anemia constantly progressed in spite of rectal and gastric alimentation and she died, July 16.

A post mortem was absolutely refused and consequently the only possible examination was made per vaginam, but this was done in a quite satisfactory manner, all the thoracic and abdominal viscera being removed and submitted to examination.

The following extracts of the examination touch only on the points of direct interest: "The entire pyloric end of the stomach shows a thickening of the walls, chiefly in the muscular and submucous layers. This thickening is diffuse, not nodular, and is very firm in consistence. The mucosa of the stomach is very anemic and in a few areas minute hemorrhagic extravasations are to be made out. The mucosa moves freely over the submucosa and is apparently not at all involved by the process noted. Although the entire pyloric ring is thickened, it does not amount to a clinical obstruction."

Both gross and microscopical examinations of the other viscera showed only the changes consequent upon severe anemia. The lymph nodes were in particular inspected, but no metastases were found except in certain of the smaller nodes of the gastric mesentery, which showed a few small patches of invasion.

Microscopical study of the growth showed it to be a fibrosarcoma, though in places the diagnosis of myxosarcoma might be granted.

To my mind there is no doubt but that primary sarcoma of the stomach is much more frequent than is generally thought to be the case. Unquestionably this is due to the fact that microscopical examination of tissues removed post mortem is not invariably resorted to. The four recorded by me have been discovered in a series of some 1,200 consecutive autopsies, and in each of these instances the gross specimen aroused my suspicion as to the unusual nature of the growth. It stands to reason that gastric sarcoma may, in many instances, resemble the more common gastric carcinoma, and it is my firm belief, that were every case of stomach neoplasm examined microscopically, we would find sarcomata much more frequent than my statistics indicate.

Judging from my four cases, a very small and insufficient number, it is true, it seems that in several respects, sarcoma of the stomach differs materially from the usual course of gastric cancer.

There is less tendency to involvement of the gastric mucosa and more toward infiltration of

the muscular walls. Metastases seem to be less frequently formed and of later appearance and the course of the disease is longer than usual in carcinoma.

It has seemed to me for some time, after a study of my own cases and of such as I have found in the somewhat meager literature of the subject, that it may be possible to make a differential diagnosis in some cases of gastric growth, between cancer and sarcoma of the stomach. Obviously this can be done in but a small number of cases, but in these it is apparently of considerable importance since the sarcomata seem to present a more hopeful field for surgical intervention than the carcinomata on account of the less tendency to general metastasis and invasion by contact.

I feel certain that in the instances cited above the distinction should have been made in Cases II and III particularly, as it was possible to satisfactorily palpate the general abdomen contents in these cases.

The presence of gastric tumor, with both free hydrochloric and lactic acid in the stomach washings, the long course of the disease without discoverable metastasis, with little or no blood in vomitus, even in the later stages of the disease, should, in my opinion, lead at least to the serious consideration of the possibility of gastric sarcoma.

In closing these case reports permit me to say that in my opinion cases of gastric tumor should be submitted to surgical council, even to exploratory laparotomy, just as soon as diagnosis becomes a matter of tolerable certainty.

MEDICAL PROGRESS.

MEDICINE.

Tuberculous Meningitis.—W. F. Cheney (*Journal A. M. A.*, May 20) reports and comments on three cases of tuberculous meningitis with special reference to the diagnosis. He mentions the indefiniteness of the early symptoms, and says that we should always be suspicious of tuberculous meningitis in a child in illness with associated digestive disturbances, slight fever and irritability of temper. Stupor is more significant, but it may also be due to intestinal toxemia or some acute infection, but in such case there is usually a higher fever. Evidences of intracranial pressure, such as pupillary abnormalities, local paralyses, irregularities, etc., are still more definite indications, but these, like the mental condition, may vary from day to day, thus giving rise to false hopes of recovery. Rigidity of the neck muscles is a very valuable sign, only likely to be simulated by disease of the cervical vertebræ or rheumatic torticollis, and in these other symptoms of meningitis are apt to be wanting. The Kernig sign, so valuable in the adult, is, according to Cheney's experience, difficult to elicit in children, owing to their fear of manipulation. The white blood count is of value, a moderate leucocytosis pointing to tuberculous rather than to other forms. Lumbar puncture furnishes negative evidence of value, with the other symptoms present, a clear fluid, free from microorganisms is characteristic of tuberculous meningitis. One of his reported cases is of interest on account of its occurrence in an adult, its clinical resemblance to cerebrospinal meningitis, and from its being the only one of the three in which an autopsy was obtained. We are apt to associate tuberculous meningits with infancy, but it can be excluded at no period of life. In this case the low leucocytosis and the lumbar puncture findings confirmed the diagnosis of tuberculous meningitis during life, and the autopsy revealed a pre-existing lung focus. Tuberculous meningitis is always secondary to the disease somewhere else in the organism. The article concludes with remarks on the differential diagnosis from other conditions, and especially from the other forms of meningitis.

Headache From Malaria.—C. J. Stedman (*Journal A. M. A.*, May 27) reports a peculiar case of malaria, without temperature symptoms, occuring in the middle of an Arctic winter. The only symptom—headache—appeared each forenoon and lasted five or six hours. The patient acknowledged no previous malarial infection. The blood examination showed no perfect organisms, but numerous malarial spores, and these rapidly disappeared, with the symptoms, under quinin. He regrets that the blood examination was not made earlier and the exact character of the parasite determined, though the appearances indicated the tertian organism. The case is reported on account of the unusual circumstances and manifestations, and as a suggestion of the importance of early blood examination.

Economics of Medical Organization.—J. Madison Taylor (*Journal A. M. A.*, May 27) deprecates the lack of professional and scientific cooperation in the medical profession. There should be more frank and full discussions and interchange of opinion; more professional consultations between general practitioners, and more interest and activity in local medical organizations. "If we show that we have confidence in each other the general public will have more confidence in us." He suggests the clubbing together of physicians of moderate means in the purchase of professional works and subscription to medical periodicals, thus multiplying their resources for professional information at slight individual cost, and the more freely availing themselves of each other's professional knowledge and skill in the common exigencies of general practice. Lastly, he speaks of the need of more influence of the profession in public matters and in legislation, which can only be remedied by better organization and more active work on our part. "If," he says, "each reputable physician in America were a member of the American Medical Association, and fulfilled his duty in local and centralized organizations, not only would the power of medical opinion become invincible, but individual self-respect would reach a high plane. Not only so, but individual values being thus raised, proportionate earnings would follow. The public is perfectly willing to pay well for value received, and would quickly become content to pay more for better service, not only in times of exigency for personal attention, but for the knowledge that through and by intelligent watchfulness of local and national interests they would be better served, better protected, and that future needs would be anticipated and met."

Action of Roentgen Rays on Leucemia.—The beneficial action of the Roentgen rays on leucemia, reported from so many clinics, could also be observed by F. Lommel (*Münch. med. Woch.*, May 9, 1905).

In one case the leucocytes dropped from half a million to normal in three months, and the myelocytes disappeared altogether. The spleen was no longer palpable at the end of treatment, and the patient lost his anemia and could do light wrk without fatigue. It seems, however, as if the cure is not permanent, for when the patient was seen again after several months, his blood contained over 50,000 leucocytes. The first sign of recurrence is the appearance of myelocytes in the blood. Good results were also seen in Hodgkin's disease, but the patient died of some other affection, so that it was impossible to say if the cure was permanent.

Appendicitis Work;—Different Views.—R. T. MORRIS (*Med. Rec.*, May 27, 1905) says that although formerly he used to forbid morphine altogether his views on the subject have changed and he now gives it cautiously in cases in which there is great restlessness. The drug is still regarded as a double-edged sword, however. Both gauze packing and iodoform gauze have been abandoned altogether, as well as the use of buried sutures of silkworm gut. A standard length of one and one-half inches for the incision has been adopted for nearly all instances, including cases of abcess and peritonitis, and it has been found safer to deal with adhesions by touch than by sight. The time limit has also been greatly reduced, and now it is common to have the time from the first incision to the last suture occupy not more than seven to eight minutes. All patients are operated, even if moribund, a preliminary infusion of salt solution being given: adhesions are freely separated if necessary but not otherwise, and the idea of flushing out the abdomen has been dropped. After eliminating the features which seemed to have a special death-rate of their own, viz., gauze packing, iodoform gauze, long incisions, and the expenditure of time in unnecessary detail of work, one hundred consecutive operations were published with a two per cent. death-rate. The author does not favor the removal of the normal appendix in the course of other operative work, and he now uses a cigarette drain in all cases in which pus or septic débris have been left in the peritoneal cavity. The dictum of operating as soon as the diagnosis is made holds good, with certain exceptions, but it is still a question what to do with patients who are convalescing from the attack. In interval cases it now seems best to operate only when on palpation the appendix is found to be the definite seat of chronic infection or of adhesions which cause symptoms.

Ailurophobia and the Power to Be Conscious of the Cat as Near, When Unseen and Unheard.—S. WEIR MITCHELL (*Am. Med.*, May 27, 1905) says sufferers from cats may be classified as follows. (1) Asthmatics—cat asthma. (2) Cat fear, with or without sequent excessive, emotional manifestations, and only on sight. (3) Cat fear. Power to be sure an unseen cat is near. Symptoms same as in Class 2, and apt to be extreme. (4) Those of the last class can detect the cat by smell, or may sometimes and not always. (5) Cases occur in which the consciousness of a cat as present through its smell once existed, but does not now, and yet the ability to detect unseen cats remains. (6) It is therefore likely that the cat emanations may affect the nervous system through the nasal membrane, although unrecognized as odors. Many of the victims declare even strange cats seem to have an unusual desire to be near them, jump on their laps and follow them.

Review of the Tuberculosis Problem.—In a review of this subject DE L. ROCHESTER (*Buffalo Med. Jour.*, June, 1905) considers that the following precautions should be adopted by those suffering with tuberculosis of the lungs: (1) The consumptive should kiss no one; and no one should kiss the consumptive on the mouth; (2) the consumptive should never lend his handkerchief to anyone or borrow a handkerchief from anyone; (3) the eating and drinking utensils of a consumptive should be thoroughly boiled after he has used them; (4) during the act of coughing he should hold a piece of cheesecloth before his mouth, which may be burned or boiled afterward; (5) gauze or cheesecloth should be used to collect the sputa, and afterward burned or boiled, and (6) the sheets, pillow cases, night-clothes and underclothing of consumptives should be boiled for half an hour before washed. The author advocates the establishment in every community of two sanatoria, one for advanced and one for incipient, cases of pulmonary tuberculosis. By the enactment of an ordinance, every person with pulmonary tuberculosis who cannot receive proper care and be accommodated with any room at home to be occupied by himself alone, should be compelled to go to one or the other sanitariums. Two sanitariums are advocated: (1) because the treatment of the two classes of patients is decidedly different; (2) because the constant presence of advanced patients and the occasional painful death of one or more have a decidedly depressing influence upon those having incipient disease. If every case of pulmonary tuberculosis were reported to the health department, the department could send an inspector and determine whether such case is one for home or sanitarium treatment. Instruction in regard to destruction of sputum and feces, in regard to precaution as to personal contact with others and in regard to disinfection of apartments lately occupied by the tuberculous, are all of value in checking the spread of the disease; but it is the opinion of the author that if a plan of compulsory reporting of cases and compulsory removal of suitable cases to their proper sanatoria will be much more efficious than all the other procedures in ridding us of the Great White Plague.

Origin of Aromatic Bodies in the Urine.—The general opinion to-day is that most of the aromatic bodies commonly encountered in the urine (indican, skatol and phenol) are a result of bacterial decomposition in the intestines, and many authors go so far as to say that without the latter there can be no indicanuria. It is therefore interesting to note that K. LEWIN (*Wien. klin. therap. Woch.*, May 21, 1905) has succeeded in obtaining phenol by the autodigestion of tissues in vitro, where bacterial activity could be absolutely excluded. If rabbits are poisoned with large doses of phloridzin, so that an active breaking down of proteid tissue is brought about, enormous amounts of phenol and indican will appear in the urine. The urine of patients suffering from carcinoma will often show an excess of indican, but only if cachexia has been present. The indican here is very obviously derived from the decomposed proteid tissue and not from bacterial activity.

SURGERY.

Acute Pancreatitis.—A contribution to this important subject is furnished by NOBE (*Archiv f. klin. Chir.*, Vol. 75, No. 3), who reports two cases cured by operation. In one the diagnosis of a perforating gastric ulcer had been made, in the other nothing definite could be made out. In the first case there was no fat necrosis, but on going through the lesser omentum, a dark red, swollen mass could be made out, dating apparently from the pancreas. There was a good deal of fluid present. In the other case

a sloughing mass was found at the site of the pancreas, which was removed. Both of the cases were tamponed and made a very favorable recovery. From a study of published cases, the author believes that the approach through the lesser omentum is the most satisfactory.

Comparative Surgery.—HARVEY CUSHING (*Bull. Johns Hopk. Hosp.*, May, 1905) outlines the plan which has been in use at the Johns Hopkins Medical School, of the development of the plan of teaching operative surgery, which is a distinct departure from the time-worn, yet excellent methods of conducting an operative course, which for the past generation has been widely adopted and generally regarded as most practicable by the surgical teachers in the leading medical institutions. This plan consists in endeavoring to emphasize and drill into the students the following points: (1) Surgical cleanliness, which must be learned early and become a successful operator's second nature, and which is necessarily disregarded in the methods used in teaching operative surgery in the dissection room; (2) the ability to dissect living tissues without so damaging them as to prevent perfect reactionless healing; (3) an acquirement of skill in the proper control of hemorrhage, and (4) particular technic of visceral surgery, whether abdominal, thoracic or intracranial. To properly emphasize these points the course has been started upon living animals, on which all the formalities that would be observed in regard to a patient admitted for treatment to the surgical wards of the hospital have been followed. Clinical histories have been kept on regular hospital history sheets; the effect of anesthesia on the pulse and respiration has been carefully recorded; the detail of the operative preparation both for the staff and patient has been followed; pathological and postoperative notes have been made, and in case of a fatality a formal autopsy performed, and its results added to the record. The author considers that after a training of this sort, and with an acquirement of proper surgical reflexes, a student, when his turn comes, should be found a safe and valuable helper in the hospital operating room, where blunders in technic must not occur; and, furthermore, he may with profit to himself be an understanding onlooker at the surgical work of others.

A Case of Repeated Acute Intestinal Obstruction Following Ovariotomy.—E. D. TELFORD (*Med. Chronicle*, May, 1905) in reporting a case, calls attention to the fact that the occurrence of acute intestinal obstruction after the older operations of ovariotomy and hysterectomy appears to have been not uncommon. The modern use of peritoneal flaps in covering in raw surfaces and stumps has very materially diminished this risk, yet there always remain cases in which the possibility of subsequent intestinal obstruction constitutes a very real danger. This danger is especially marked in those cases in which extensive intestinal adhesions are separated in the removal of ovarian tumors or in the extirpation of matted tubes and ovaries. In such cases areas of bowel may be left in a raw, denuded condition, and such surfaces readily form adhesion liable to set up serious obstructive mischief at a later date.

Anatomical Points in Prostatectomy.—It was J. W. S. Gouley, of New York, who, together with Bottini, of Italy, between 1865 and 1886 kept alive the operation of prostatectomy. It had been devised by the French surgeon, Mercier, and for the first ten years or so after his retirement from active work, it was Gouley who actually stood alone in the practice of prostatectomy. FRANCIS S. WATSON (*Annals of Surgery*, April, 1905) describes Gouley's operation as that of rapid fingering creation to the size of the prostatic urethra by the forefinger. The author states it to be identical with the operation employed by Goodfellow, of San Francisco, who not knowing Gouley's description, assumes it to be original with himself. One of the most important anatomical points in connection with rendering possible the digital enucleation of the prostate, is that the three so-called lobes are definitely separable from the fibrous sheath enclosing them. The thickness of this is in some cases most conspicuous. There is a well-marked interval or space between the surface of the gland and the inner aspect of the outer sheet. It is in this space that all enucleation of the gland should be conducted. The level of the lower border of the urethral aspect of each lateral lobe is a little above that of the floor of the prostatic urethra, also above the level of the ejaculatory ducts. The operation, therefore, which does not involve injury of the floor of the prostatic urethra, will not injure the ducts. Thus enucleation without injury to the ducts is theoretically at least possible. This is a contravention of Dr. Young's holdings, who claims that the digital enucleation of the gland is a proceeding which takes place in the dark and which must be injurious to the ducts. The author emphasizes the fact that it is not so much a matter of technic, but rather is it important that those who are experts in this special province, should teach the profession at large that the operative treatment of prostatic hypertrophy has been sufficiently perfected to make it desirable that patients should be given the benefit of it rather than be submitted to the dangers of catheterism until surgical intervention is practically hopeless. The credit of devising suprapubic prostatestomy belongs to Belfield and McGill as certainly as it does not belong to Freyer. To him, however, is definitely due the awakening of great interest in the subject of prostatectomy in England, where, as is well known, the perineal route has never been seriously considered by surgeons. The article illustrated by photographs of the author's recent specimens, some of which show very clearly that the ejaculatory ducts may be saved even when the gland is removed by finger enucleation through the median perineal incision. In conclusion Watson states that the mortality of the perineal operation is much less than that of the suprapubic, that at least two out of three times the gland is to be found removable via the perineum and that in the other third the surgeon may proceed to do the suprapubic operation. After seven years of attention to the subject of prostatectomy, Watson concludes that he would suggest that the most valuable contribution at present possible on this subject would be to have reported cases treated by the catheter throughout with special reference to mortality and the time which elapsed between the commencement of catheter treatment and death.

Morphine-Scopolamine Narcosis.—The general opinion in Germany is voiced by M. KOCHMANN (*Münch. med. Woch.*, April 25, 1905), when he states that morphine and scopolamine alone as narcotic, is hardly ever safe since the dose of the former drug is too high. Small doses are, however, highly to be recommended if followed by one of the usual anesthetics (morphine hydrochlorate 0.01 to 0.02 gme., scopolamine hydrobromate 0.5 to 1.0 millgme. in fresh solution). Either chloroform or ether may be used but with ether the advantages are perhaps more marked. The excitation stage is shorter, less anesthetic is necessary, salivation is never troublesome and the danger of post-

operative pneumonia is considerably diminished. Some 1,200 cases have been reported with a mortality of one per cent., but many of the patients were already in a moribund condition when operated on. It may also be advisable to resort to the two drugs in smaller doses in Schleich's infiltration anesthesia.

Value of Functional Renal Diagnosis.—The general opinion concerning the value of the various methods employed for determining the functional activity of the kidneys has undergone considerable modification of late. Ureteral catheterization is employed quite generally in preference to the different segregators, despite the fact that Luys has recently described a new instrument which it said to be superior to anything previously offered. A perusal of the book written by Luys convinced G. KAPSAMMER (*Münch. med. Woch.*, April 25, 1905) that the disadvantages of segregators in general also apply here. It is particularly the fact that the urine is not collected directly from the ureters but is permitted to mix with the secretions of the bladder, which introduces a serious source of error. There can be no doubt at the present day that the only safe and reliable method of obtaining the urine from the two kidneys is by means of ureteral catheterization. Cryoscopy is no longer considered so infallible a method as it was years ago. Koranyi himself laid down definite rules but later investigations have shown that the freezing-point of the urine may vary within very wide limits both in health and in disease. The freezing-point itself is of little value since this may be modified considerably by the amount of water ingested. It is more important to estimate the freezing point of the urine first under ordinary conditions and then to give the patient a large amount of water to drink; with normal kidneys the urine will be more dilute, while in parenchymatous nephritis the concentration need not be altered. To determine this, it is not necessary to resort to cryoscopy, for the specific gravity will tell as much. Another fact which must not be forgotten is that the simple insertion of a catheter into a ureter may set up a reflex polyuria which will considerably alter the freezing-point even though the kidney of that side is in every way normal. The freezing-point of the blood is equally as unreliable. Two years ago, Kümmel stated that 0.58° to 0.60° pointed to bilateral disease, hence contraindicated nephrectomy, while 0.56° excluded absolutely bilateral disease. Recently, a large number of cases have been reported where both kidneys were normal or only one was affected, with a freezing-point of 0.60° to 0.69°. Similarly, there are instances where both kidneys were much diseased with normal freezing-point. In anemia and cachexia, low figures are the rule and if the kidneys should become insufficient, it is quite possible for the blood to freeze at the normal point. It is therefore safe to say that cryoscopy can be altogether dispensed with. Two dyes have been employed subcutaneously and their excretion studied by means of cystoscopy. Of these, methylene blue is extremely unreliable, while indigo-carmine is a decided improvement. Its chief use is to determine the site of the ureteral orifices in difficult cases; it will never, however, replace catheterization. Finally, phlorizin has been recommended, since a diseased kidney is not supposed to discharge sugar after injection of 0.01 gme. It seems, however, that the excretion of phlorizin sugar takes place chiefly in the glomeruli so that it is quite possible to get a saccharine urine where the nephritis affects principally the convoluted tubules. Another source of error arises if the catheter incites a reflex polyuria; the urine from the healthy side may then contain less sugar than that from the diseased side. The total amount of sugar excreted from each side cannot always be determined, hence it is best to place sole reliance upon the time which elapses before the first trace of sugar appears. Normally, this occurs in twelve to fifteen minutes; twenty to thirty minutes signify a reparable disturbance and later than thirty minutes, complete loss of function which would contraindicate nephrectomy. The appearance of sugar in twelve to fifteen minutes will prove that the kidney is perfectly healthy, provided that albumin and casts are not present in the urine. In the latter case a tubular nephritis may yet be present. There are a few cases on record where even these conservative rules have misled. The author finally concludes that only the indigo-carmine and the phlorizin tests possess some value in determining the functional activity of the kidneys.

THERAPEUTICS.

The Therapeutic Art.—O. T. OSBORNE (*Journal A. M. A.*, May 13) remarks on the deficiencies of textbooks and of the ordinary methods of teaching therapeutics and the embarrassments of the newly fledged physician in adapting his treatment to his case, and points out what seems to him the remedy. He would have laboratory pharmacology taught by a purely scientific man and the therapeutic application by a purely practical man, but would have the two courses so interwoven as to constitute one department. He lays down a program of the course of teaching, which can, of course, be improved on, he says, as the plant grows. Early in the second year he would begin with a practical experimental course in the pharmacologic laboratory, following this in succession with laboratory courses on toxicology and pharmacy. After this comes the introduction to materia medica and prescription writing, the size of doses, the recognition of crude drugs, etc. At the end of the year a written examination on all the subjects covered in the previous studies is required. During the summer vacation he would have the student spend fifty hours in the prescription department of some drug store, thus beginning a practical acquaintance with these tools of his profession. At the beginning of the third year the physiologic action of drugs is taken up and the last third of the year is devoted to lectures on appliances, applications, hydrotherapy, climatology, electricity, organic extracts, etc., and blackboard work on prescription writing and criticisng is continued daily throughout the year. Toward the end of the year lectures are given on the history of medicine with special reference to the advances in scientific therapy. In the fourth year the study of therapeutics is continued by lectures on the management of the various diseases, how to treat them with reference to the physiologic, pathologic, etiologic, symptomatologic and other considerations involved, selection and administration of drugs, etc. Throughout this senior year two clinical lectures are given each week, and the senior students act as clinical assistants in the dispensary, taking histories and writing prescriptions under dictation. At the end of this course, after passing a written examination, the graduate, Dr. Osborne remarks, ought to know something of this subject.

Treatment of Hay-Fever.—A. DENKER (*Münch. med. Woch.*, May 9, 1905) has had no success with the antitoxin treatment of hay-fever, but recommends nasal massage. The mucous membrane of the nose is thoroughly anesthetized with cocaine and adrenalin, then gentle massage is begun at the inferior turbinated bone with a cotton-carrier, dipped in a 10 per cent. solution of europhen in oil. After the lateral portions of the nose have all been treated, the massage is continued downward along the septum. The procedure should

take two to three minutes at first, later, when the mucous membrane has become less irritable, three to four minutes. The effect is marked and lasting, and in several cases there was no return of the affection during the second year.

Albumin Digestion in the Stomach.—In the hopes of obtaining some idea of the actual digestive powers of the stomach, E. Rosenberg (*Zeitsch. f. klin. Med.*, Vol. 56, Nos. 5 and 6) gave test-meals of plasmon to a large number of patients and then analyzed the various proteids found in the expression after forty-five minutes. The degree of peptonization varied within very wide limits, thus in one case of simple, uncomplicated subacidity, 61 per cent. of the plasmon was dissolved, while the lowest figure—13 per cent.—was found in an anacid gastritis. It is impossible to lay down definite rules for the different pathological conditions of the chomach except in atony and ectasy, where the average is quite constantly 26 per cent. and in hyperacidity, where about 18 per cent. is the rule. It seems strange that peptonization should be so slight in hyperacidity and often relatvely good (55 per cent.) in such serious disturbances as carcinoma. The method therefore has no more practical value than the tryptophan reaction, which was also found positive in many different conditions, and often negative in carcinoma.

The Therapeutic Use of the X-rays.—First referring to his earlier articles on the subject, W. A. Pusey (*Journal A. M. A.*, May 13) the results of his later experience with the X-ray. In some disorders, such as hypertrichosis and lupus erythematosus, the results have not equaled expectations; in some others, such as tuberculous glands and joints and deep sinuses, the results have been variable, though with some marked successes. The value of the X-rays has been most markedly demonstrated in sycosis, tinea, acne, rosacea, lupus vulgaris, blastomycosis, cutaneous carcinomata and senile keratoses. The value of the X-rays has also been shown in hyperidrosis, inflammatory dermatoses, pruritus, nevi, keloid, sarcoma and as a prophylactic after operation for malignant disease. In some other conditions, abdominal tuberculosis, acinomycosis, mixed tumors of the parotid, there has been apparent benefit from the X-rays, but Pusey does not feel inclined, from his experience, to make any very positive generalizations. In the deeper situated cancers, as might be expected, the treatment is less hopeful, though palliation may be hoped for and some surprisingly good results are reported. In conclusion, Dr. Pusey gives his latest experience with pseudoleucemia, leucemia and goiter. In the former he has repeatedly seen clearing up of the glands, but in the only case he has been able to follow up there have been repeated recurrences. In true leucemia he has seen like good effects as regards disappearance of the enlarged glands, but generally without any corresponding improvement in the condition of the blood. One remarkably successful apparent cure is reported, the blood examination revealing normal conditions and the patient apparently well. In some small parenchymatous goiters he has seen reduction in size of the tumor, but in most of his cases no benefit was observed.

Relation of School Methods to School Diseases.—W. J. Herdman and J. H. McBride reported for the committee appointed at the New Orleans session of the American Medical Association (*Journal A. M. A*, April 15). They gave an account of what has been done here and abroad in the way of school inspection and isolation of diseased children and general sanitation of school buildings, the special care of backward children, etc. They find the work satisfactorily done in a few places, though as yet inspection methods are far from complete in most communities, and in some they have never been tried. The report recommends that the American Medical Association put itself on record as urging complete and systematic medical inspection of schools and school children: "1. In the interests of the public, since it is a potent means for detecting and preventing the spread of contagious and infectious diseases; 2, for the purpose of securing to the child, while in attendance on school, the most favorable hygienic and sanitary conditions; 3, for the purpose of securing exact knowledge regarding the physical and mental capacities of each child, in order that the methods of instruction may be intelligently directed to meet individual needs."

PRESCRIPTION HINTS.

Ointment for Burns.—In his practice Professor Reclus, of Paris, France, employs for wounds of all kinds and burns a salve which combines a threefold action—antiseptic, analgesic, and hemostatic. This ointment is based on the principle that wounds, burns, or ulcerations of every kind can be painful, can bleed, and can become infected. An application in order to be of service should combat all these complications. His idea was consequently to combine, in the same vehicle, vaselin, antiseptic, analgesic, and hemostatic substances. The following preparation may be used in every case when the skin is broken, either from wounds, sores, ulcers, burns, etc. It is especially useful in the extensive wounds observed in crushed limbs.

℞ Antipyrin 5i
Boric acid ..... } aa 3½
Salol ..... }
Iodoform ..... } aa gr. xv
Phenic acid ..... }
Corrosive sublimate .....gr. ii
Vaselin 5vii

M. After washing the raw surface with hot water (130° F.), to remove all foreign bodies and destroy the microbes, the parts are sprayed with peroxide of hydrogen and the ointment is applied to all the surface on antiseptic gauze and the parts put up in absorbent cotton. The ointment, on account of the iodoform, might inconvenience some patients by its penetrating odor; in that case iodol may be substituted. Where large ulcerations are to be treated or extensive burns, the amount of vaselin might be increased two or threefold, but the doses of the active substances should remain the same.

For Leucorrhea.—If the discharge is watery the following formula will supply a valuable suppository for leucorrhea:

℞ Hydrastininæ hydrochloratis .....gr. xii
Zinci boratis .....gr. xii
Extracti belladonnæ .....gr. iii
Boroglycerini 5iv

M. Fiant suppositoria No. xii.

Sig. Introduce suppository into vagina at bedtime, after using a cleansing douche.

Enteralgia.—

℞ Spiritus ammoniæ aromatici 5i
Spiritus chloroformi 5i
Spiritus camphoræ 5ii
Tincturæ hyoscyami 5iv
Extracti cannabis Indicæ fluidi 5i
Tincturæ cardamomi compositæ ....q.s. ad. 5vi

M. Sig. Two teaspoonfuls in water every hour or two until pain is relieved.

THE MEDICAL NEWS.

A WEEKLY JOURNAL

OF MEDICAL SCIENCE.

COMMUNICATIONS in the form of Scientific Articles, Clinical Memoranda, Correspondence or News Items of interest to the profession are invited from all parts of the world. Reprints to the number of 250 of original articles contributed exclusively to the MEDICAL NEWS will be furnished without charge if the request therefor accompanies the manuscript. When necessary to elucidate the text, illustrations will be engraved from drawings or photographs furnished by the author. Manuscript should be typewritten.

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SATURDAY, JULY 15, 1905.

AMERICAN MEDICAL ASSOCIATION AT PORTLAND.

IN spite of the distance from the center of population there has been a notable gathering of the members of the medical profession of this country at Portland during the past week. Nearly two thousand members of the Association registered and there were many more non-members present at this session than usual. This year's meeting will help in an important degree in extending the influence of the national body. Not only did physicians all over the country take advantage of this opportunity of being present at the exposition of the nation's medical work, but nearly every member of the Association brought with him his wife or sister or child, to enjoy a visit to the Pacific Coast and the Northwest. The trips before and after the meeting to Yellowstone Park, to the Yosemite, to Canada and to Alaska, as well as the Lewis and Clark Exposition in Portland, formed an irresistible combination which perfect weather made possible for all to enjoy. This proverbially charming summer weather of Oregon had been overdoing itself, for the week before the meeting had been a record breaker in temperature in Oregon. So much so that in Portland the iron drawbridges "froze" tight from the heat—proper allowance not having been made for expansion resulting from such unusual heat—and it was only after the fire-boats had cooled the iron girders that the draws could be moved. But by the time the bridge opened and the hot wave had reached the Eastern States, Portland weather was itself again, with clear blue skies, Pacific breezes and cool nights.

The Lewis and Clark Exposition, with its natural vistas of water and woodland and its wealth of surrounding blossoms, is perhaps more satisfactory than any of the preceding national expositions, in that it is small and thoroughly artistic, and that it represents the idea of progress rather than competition. It shows the great resources and industries of the West in a way that is more stimulating to the mind of scientific bent than other more commercial expositions. The buildings of the Exposition, as well as many of the houses of Portland, were thrown open to the members of the Association and their friends, for fêtes and receptions, and after the business of the meeting was finished the Association and its friends devoted the whole of Friday to a trip on the Columbia River with its panorama of white-capped mountains and an elucidation of salmon fisheries as a diversion. Under these circumstances it is not surprising that the social features of this year's meeting of the American Medical Association are sure to leave pleasant memories for many years to come for all those who were in attendance. Western hospitality proves its right to a place in tradition beside that of the South, and will not soon be forgotten by those who had the privilege of enjoying it.

The scientific side of the meeting was fully up to the standard of the Association's annual sessions, and was, if anything, more practical and helpfully suggestive than usual. The symposium on nephritis on Wednesday morning and that on the stomach on Thursday morning summarized succinctly recent progress as regards the diagnosis and treatment of the diseases of these most important organs. There was not a single paper contributed to these discussions that could be considered in any sense the conventional review of well-known details that such papers sometimes prove to be. Each represented an interesting phase of recent experience and study, presented by an investigator keenly alive to the advance of medicine along this particular line.

The readers of the MEDICAL NEWS when they see the society proceedings during the next few

weeks will, we feel, be as much impressed as those who were present with the fact that the discussions in the symposiums were as thoroughly scientific as those in the best European medical societies, and that they indicated a striving for ideals which will undoubtedly raise the standard of medical society work. The review of recent progress in our knowledge of nephritis proved especially interesting and timely. There was a radical departure from some of the old lines of thought and long accepted notions. It is now acknowledged that albumin and casts may both be present in the urine under certain circumstances without necessarily signifying the existence of nephritis. On the other hand nephritis of marked degree may exist without either albumin or casts being present in the urine at certain times and even for prolonged periods. Urinary examinations alone do not suffice for the diagnosis of Bright's disease, but the complete round of the patient's symptoms must be taken into consideration. When the heart fails, then it is that the kidney lesion becomes most significant and tends to presage a fatal termination. At all times the heart and arteries are most important factors, and interstitial nephritis is a local manifestation of arteriosclerosis rather than an example of true nephritis.

It was curious to note that in spite of all the detailed pathological work that has been done on kidneys during the last quarter of a century, the classification of kidney disease oftenest referred to in this symposium was that oldest of all, the large white kidney and the small and the large red kidney. The best authorities are agreed that the distinctions between kidney conditions must be made on the basis of clinical rather than pathological knowledge, and that only when our acquaintance with etiology advances much farther than at present can a definite classification be made.

With reference to treatment, two different elements were considered most important. In chronic nephritis the patient's nutrition must be maintained and too much liquid must not be advised, as this only overworks the heart without compensating advantage. In acute nephritis, starvation is the indication, as it gives the kidney as nearly a complete rest as possible; in the acute exacerbations of chronic nephritis the same rule must hold as far as the patient's strength will permit. Here great care is required. Undoubtedly more harm than good has been done in the past by too great a limitation of the diet.

The emaciation so commonly seen in nephritis is more often the result of too strict diet than effect of the kidney lesion. It was emphasized that the dietetic distinction between red and white meats usually made has no justification in their respective effects, and that the maxim of exclusive milk diet for kidney disease has done more to lower resistive vitality than to save the kidney from irritation.

In the Section on Surgery and Anatomy the series of contributions on ulcer of the stomach and duodenum, practically constituting a symposium, made it clear that the same enterprising American surgical efforts that have in recent years served to save so many lives of sufferers from appendicitis and cholelithiasis are now to prevent the serious, sometimes even fatal, complications of gastric and duodenal ulcer and at the same time forestall the development of malignant disease which so often proves the terminal stage of these disorders. Furthermore, the surgical contributions to this session on cancer have a more hopeful aspect than has been the case in recent years. Forty per cent. of patients operated upon for cancer of the breast by the radical method were reported as alive after the three-year limit, and the immunity to recurrences has increased in exact proportion to the amount of tissue removed at the primary operation. Gallstone surgery received the usual attention that it has claimed in recent years, and the evidence of progress is clear here as elsewhere. Refinements in the clinic were especially dwelt upon.

The subject of the occurrence of parasites in various parts of the United States and its recently acquired tropical possessions furnished material of special attention. The review of recent work on amebic dysentery accomplished in the Philippines shows that this disease is at last yielding the solution of many of its complex problems to American industry and genius for investigation.

Dr. Cabot paid a well-deserved tribute in the medical section to the work of American physicians that in Cuba has freed the island from the scourge of yellow fever so long epidemic, and in Porto Rico is gradually freeing, though with quite as assured effectiveness, the inhabitants of the island from uncinariasis, the cause of the anemia, which has proved such a drawback to progress.

Too much praise cannot be accorded to the workers of the marine hospital service, to the

military surgeons, and, above all, to the private investigators who have helped in the brilliant results. It has sometimes been said slurringly by our European colleagues that little that was original came from America, but these last few years show that with due opportunities and incentive for original investigation the talent is not only not lacking, but exists in a very remarkable degree.

From many sections there came, with abundant evidence of intense feeling, a cry for the reform of the patent medicine evil. It was no thoughtless bickering, but a moderate, strong, and healthy demand that the unbearable conditions as they are now found in the United States be modified. And there is good prospect that the hopes expressed will be realized, for in the frank realization that we as physicians are largely responsible for the situation lies a way out of the difficulty. Modern pharmaceutical quackery is born of modern therapeutic nihilism. Many of our leaders in therapeutics, imbued with exclusive laboratory ideals, have left their students to stumble in the darkest ignorance of their materia medica. We may honor the teachers' convictions regarding the worthlessness of much that has been passed down to us from Dioscorides to the modern herb doctor, but to ignore totally the teachings of materia medica, of prescription writing and of simple compounding has been to send forth a generation of physicians who must needs permit the pharmaceutical houses to do their thinking for them. The recognition of our shortcomings in this branch of medicine happily opens the door that may release us from an intolerable situation.

The House of Delegates conducted an immense amount of practicable business. It has proved its value as a legislative body, and the former tedious modes of transacting the business of the Association fortunately are relegated to the past. One important step in the direction of the organization of the profession throughout the country was taken when the trustees were empowered to proceed with the compilation of a medical directory of all the States of the Union.

A very interesting difference in the present meeting from all recent ones was the interest in the Sections of General Medicine and Surgery, and the comparative neglect of other sections. Many of the specialists whose faces are familiar at meetings of the Association were missed, but, on the other hand, the rank and file of the general medical practitioners of the Middle and Pacific West were better represented than ever before. Though the medical and surgical sections met in large rooms, it was impossible to seat all who came, and many stood throughout the sessions. There has probably never been so much interest displayed in the proceedings of the sections as at the present session. The interest was of the active kind that constantly catches points made, and the sessions became postgraduate teaching of the most valuable variety. It is evident that the recent meeting of the American Medical Association will long be remembered by many who have not had for years the chance to be in touch with it.

COMPLETE MEDICAL RECONCILIATION.

AT the last meeting of the Erie County Medical Society of New York State, Dr. Henry R. Hopkins, as chairman of the Legislative Committee of the Society, offered a resolution to the effect that "this organization authorize its legislative committee to prepare a bill for the purpose of improving our system of State medical examinations by creating a single medical examining board of such number of members so selected as shall be determined by the various representatives of the medical profession and instruct its committee to invite conferences with other societies, State and County, to the end that the proposed bill may meet the views and have the support of the medical profession of the State of New York." This resolution was unanimously adopted. If it could be made effective, it would at once do away, let us hope forever, with all the differing schools of practice of medicine in New York State and there would no longer be homeopath nor regular, nor eclectic, but only physicians licensed to practice in New York State.

This resolution came as a result of the discussion in the Erie County Medical Society of the extremely narrow margin (only one vote) by which the bill granting to osteopathists a medical examining board of their own and all the rights to practice medicine that would accrue to applicants from the obtaining of a license from this board. Under the present system of division of the different schools of practice as pointed out by Dr. Hopkins, the medical profession is placed in a very unfavorable position for preventing the passage of laws that might create further medical examining boards. It is true that what the osteopathists ask is to have a board all their

own so as to secure their license on the easiest possible terms, while the other schools have only the permission to select a special examination in therapeutics, but must pass in all other departments. Unless a distinct modification shall somehow be secured in the present medical status of legal qualification in New York, there is no doubt that each year the battle in the legislature against osteopathy will have to be fought over again and there is a haunting premonition that some time or other—such are the alluring ways of the osteopathists with our legislators—the necessary number of votes will be obtained and a great wrong perpetrated upon the people of this State, a wrong which it will be practically impossible ever entirely to correct.

The question occurs then: Is it possible to make the modification in the present laws suggested by Dr. Hopkins' resolution and unanimously approved by the Erie County Medical Society? In this matter it must not be forgotten that Dr. Hopkins himself is a man of large experience and thoroughly conservative judgment with regard to legislative matters and the general interests of the profession in this State. The Erie County Medical Society, practically the Medical Society of the City of Buffalo, is not apt to give its unanimous approval to a resolution that would be either impossible to fulfilment or be likely in any way to oppose the best interests of the medical profession of New York State. It is clear then that the subject may be considered one, not only open for discussion, but really demanding professional consideration at the present time.

The Medical News has more than once voiced the growing sentiment that there is at the present moment much less of real difference of opinion between the different schools of the practice of medicine than is usually thought by those not familiar with the trend of thought outside of their own special medical interests. It is with regard to therapeutics that the only differences remain. There is a general agreement of minds at the present time that this is where all the schools of medicine are weakest. Recent improvements in specific therapeutics, such as the use of the various antitoxins that have a recognized curative value, are accepted by all the schools. There seems to be ample room for the thought that there might well be a still nearer approximation and that even in the department of therapeutics the State Medical Examiners could so arrange questions that no one of the three schools of medicine would feel aggrieved because of any neglect of what is true in their special system or because of any demand beyond what their students should be expected to know.

This amelioration of present conditions could come nowhere more appropriately than in New York State. It was in this State that first of all, in order to secure the passage of a law regulating the practice of medicine, physicians of the regular school consented to lay aside some of their prejudices and work in harmony with professional brethren of the other schools in order to secure the requisite legislation. Following their example, other States did the same thing, and as a consequence, most of them now have laws for the regulation of medical practice which would not have been passed for many years perhaps except for this example of yielding somewhat in order to secure a noteworthy benefit. This movement for reconciliation could not come more opportunely than at the present time, since there is little doubt that this year is to see the reunion of the divided medical organizations of the regular school in this State. Next year will be celebrated the centenary of the passage of the first law regulating the practice of medicine in the State of New York. It would indeed be a very worthy feature of that celebration if there should be proclaimed an obliteration of the party lines in therapeutics that have been holding members of the medical profession apart. This second example on the part of New York State would be followed even more rapidly by other States to the great benefit of medical practice and professional life throughout the country.

All of this can be accomplished without any yielding of principle, but only by a rational accommodation of opinions. As we have said, the material difference is in the matter of the use of drugs, and here it is that all the schools are weakest and are ready to confess more and more as time goes on that their knowledge is obscured by ignorance and by too confident trusting in experiences made under circumstances that often suggested conclusions without really demonstrating them. The Erie County Medical Society has our heartiest congratulations in the movement it has so opportunely initiated, and we ask for it the cooperation of other county medical societies throughout the State and eventually of the State medical organizations—regular, homeopathic and eclectic. Here is a work worthy of the best efforts of a distinguished liberal profession.

ECHOES AND NEWS.

NEW YORK.

Hospitals Crowded.—During the hot days of the past week nurses and physicians at Bellevue, Gouverneur, Roosevelt, and, indeed, all of the great hospitals, were overcrowded caring for the heat cases. Patients were sent home as soon as revived, wherever this was possible, the emergency wards being crowded. It was estimated that upward of two hundred beds were almost continuously occupied by heat prostration patients in the hospitals of Manhattan alone.

Health Expert Arrested.—Eugene Christian was a prisoner before Magistrate Breen, in the Jefferson Market Police Court, on July 7, charged with having practised medicine without a license. The arrest was caused by detectives employed by the New York County Medical Society. Christian seems to have advertised rather extensively in the better class of magazines as a "naturalist and food expert." According to the detectives, the man would make a diagnosis of each case, and prescribe his own prepared health foods for the patients, as well as suggest proper exercise. The defendant in the case is said to be an author, having written several books on the subject of "How to Eat," some of which are used in the colleges and universities of this country. Mr. Gardenhire, who appeared for the food expert, said: "Mr. Christian never made any effort to practice medicine." The defendant himself said: "I did what a swimming instructor or an athletic instructor would do, gave advice along a special line, in this case as to 'How to eat.' I am sure I violated no law in what I did do."

Work of German Hospital.—The German Hospital and Dispensary, of whose advisory committee Carl Schurz is president, received bequests amounting to $16,986.80 during the last year, says the annual report, just received. Beds were endowed by Julius Heimann, Herman Sielken, and George Ehret. The number of patients treated was 3,832, and 1,854 surgical operations were performed. The cured and improved patients were 85.67 per cent., while 9.07 per cent. died. Of those admitted, 1,647 were natives of Germany and 1,200 of the United States. The classified list shows that the patients included 131 bakers, 784 housewives, 183 laborers, 214 schoolboys, 123 schoolgirls, 143 servants, and 159 small children, these being the only classes represented by more than 100 each. The principal causes of death were chronic nephritis, 28; lobar pneumonia and myocarditis, 13 each; chronic endocarditis, carcinoma of the stomach, acute appendicitis, and carcinoma of the bladder, 9 each. The institution has cared for 987,959 patients since 1857. Since 1866 the bequests have amounted to $478,008.26. Last year was the first in which the hospital and dispensary were managed under the new charter and by-laws, with the board of trustees in complete charge.

Floating Hospital's Trip.—The floating hospital of St. John's Guild, Helen C. Juilliard, made her first trip of the season on July 6, leaving the pier at the foot of West Fiftieth Street, and making landing at West Thirty-fifth Street and West Tenth Street. Three hundred and thirty-six mothers and children were taken for a sail on the waters of the bay. From now on throughout the summer the hospital will make trips daily except Sunday, and when the weather is stormy. On Mondays and Wednesdays the hospital will land at North River points, as above. On Thursdays and Saturdays it will make landings along the East River—at the foot of Twenty-fourth Street, leaving at 8 A.M.; foot of Third Street, leaving at 8.30 A.M.; and Market Street, at 9 A.M. On Tuesdays and Fridays the hospital will leave the foot of East Twenty-fourth Street, Manhattan, at 7.30 A.M., and then make landings at Brooklyn points, as follows: North Second Street, 8 A.M.; Hudson Avenue, 8.30 A.M.; Hamilton Avenue, 9 A.M. The general plan of previous seasons will be followed. The infants will be given their feedings as required. The other children will be given milk to drink during the morning, and again in the afternoon, and the adults and older children will be furnished with a hot meal at noontime. Tickets of admission to the hospital are distributed at nearly 1,500 points throughout the city, including all the prominent hospitals, dispensaries, diet kitchens, day nurseries, missions, many doctors and druggists, and by individuals. Tickets for distribution can be had by applying to the general agent, at No. 501 Fifth Avenue, New York. The floating hospital has been thoroughly equipped under the new regulations of the United States Steamboat Inspection Service, and has a complete fire-fighting apparatus, 1,624 life preservers, life rafts, life boats, and life buoys.

Work on New Bellevue Hospital Soon to Begin.—The construction of the first section of the new Bellevue Hospital is to begin in a few weeks. The first section, to be known as the southern wing, will consist of two pavilions seven stories high. Each will be 150 feet long and 36 feet wide. They will inclose a court 64 feet wide on two sides. The sum of $850,000—one-tenth of the estimated cost of the entire structure—was appropriated by the Board of Estimate and Apportionment, to start the work, and this amount is now available for the erection of the southern wing. The new Bellevue will occupy the site of the old institution. The boundaries of the hospital grounds are Twenty-sixth and Twenty-eighth streets, First Avenue and the East River. The hospital was founded in 1816, but the greater part of the present institution was completed in 1855. The old hospital is always overcrowded, and is lacking in many facilities necessary to an ideal modern hospital. McKim, Mead & White, the architects, originally planned a new structure to cost $11,900,000, but the plans were modified later without sacrifice to capacity or convenience. The two new pavilions of the southern wing are to be connected at their western extremities by a seven-story administration building. The eastern extremities are to be joined by open three-story arches. "Sun rooms" and open balconies and roof gardens are to be special features of the institution. The experience of the past few years in building hospitals throughout the world has demonstrated the value of this adjunct to medical treatment. There will be sufficient balcony space to accommodate all the patients of all the wards. One ward in the southern wing will be devoted exclusively to the care of consumptive patients. The purpose of the Board of Trustees is to build at the rate of $1,000,000 a year, tearing down sections of the old buildings as the work proceeds.

Hospital Doctors Hurt.—Accidents to ambulance surgeons are becoming positively epidemic in New York, at the rate of two a week. On the afternoon of the Fourth an ambulance from the Hudson Street Hospital was struck and overturned by a Sixth Ave-

nue car, at Reade and Centre streets. Dr. T. Harris Cherry was hurled from the ambulance ten feet, into a group of women, children and lunch baskets waiting for a car at the corner. He was taken unconscious to the hospital, where it was found he was suffering from concussion of the brain, two severe scalp wounds and three broken ribs. Fears were entertained at first that he might not recover, but at last account he was doing well. On July 7 the ambulance of the Seney Hospital, in Broklyn, while responding to a call from a shipyard in the Erie Basin, was upset by a collision with a trolley car, and its three occupants, two doctors and the driver, were hurled to the street. The accident occurred in Third Avenue and Fourteenth Street, the ambulance reaching that point simultaneously with a trolley car bound for Bay Ridge. The ambulance horse dashed into the side of the car and the ambulance turned upside down several yards away. Dr. A. C. Hutcheson, the ambulance surgeon; Dr. Wilson B. Zimmer, a member of the hospital staff, and the driver, Charles Parker, all struck on their heads some distance from the wreck. The victims were picked up, the young doctors unconscious, and carried to a drug store. Each was cut on the head and bruised on the arms. They were attended by Ambulance Surgeon Livingston, of the Norwegian Hospital, and removed to the Seney. It was found that Dr. Zimmer, who was still unconscious when he reached the hospital, had sustained concussion of the brain. The doctors said that he would recover. He is a graduate of Cornell, and has been attached to the Seney Hospital for the last six months. Dr. Hutcheson and the driver escaped with painful scalp wounds.

Pasteur Treatment of Rabies.—The New York Health Department gives the Pasteur preventive treatment for rabies at the Research Laboratory at the foot of East Sixteenth Street. In addition, the virus is sent out mixed with a preservative, to be administered by the attending physician to persons desiring to take the treatment at home. When sent from the laboratory it is mailed daily by special delivery. The results of treatment given by the latter method have been as satisfactory as when administered at the laboratory, but it is considered advisable that not more than two days should elapse between the mailing of the virus and its injection into the patient. The course of treatment lasts from two to three weeks. It is strongly recommended that wounds inflicted by rabid or suspected animals be thoroughly cauterized with fuming nitric acid, or, if this is impossible, with the actual cautery. Immediately washing out of the wound is also advisable. When possible, it is recommended that animals suspected of rabies be securely chained and kept under observation for eight days. If rabies exists, symptoms will develop so that a definite diagnosis is possible within this time. If the animal is killed the carcass may be sent to the laboratory for diagnosis. The routine is to make an examination of smears and stained sections of the brain tissue, and also to make animal inoculations. By the former method a positive diagnosis may be reached in from thirty-six to forty-eight hours. A failure to find the characteristic lesions does not, however, exclude rabies. In the event of a failure to find the lesions, the animal inoculations are relied on for a diagnosis, which usually requires from eight to eighteen days. In sending animals from a distance it is recommended that, if small, the entire body be sent. If this is impossible, the head alone should be sent. The animal or head should be securely fastened in a box, and packed with a considerable quantity of ice and sawdust; the whole to be shipped to the laboratory in a larger box.

PHILADELPHIA.

Appointments.—Recently several changes in the Germantown Hospital staff were announced. Dr. John Hedges and Dr. William K. Muller were made chiefs of the medical department, and Dr. Samuel Rhoads was made assistant chief.

"Headache Powders" Fatal.—The depressing effects of the coal-tar products are illustrated in the death of a lady who, in attempting to get relief from the headache she had been suffering with for several months, took two "headache powders" and died soon afterward.

"Four-Day Fever."—The physicians at Coledale, a town in the eastern part of Pennsylvania, are puzzled by the appearance of a strange disease, which, from its rapid spread, seems to be contagious. It begins with violent headache, followed by high fever, which lasts four days. In some cases the skin is covered with red blotches. Altogether ninety-three cases have been reported, but no deaths.

Railroad Medical Examiners to Aid Dr. Dixon.—Following is a list of the examiners of the two roads appointed by Dr. Dixon as inspectors: Pennsylvania Railroad—Dr. Samuel W. Latta, Philadelphia, chief; D. W. Nead, C. J. Roberts, E. C. Town, J. L. Bower, Reading; J. L. Wright, Columbia; W. T. Bishop, York; S. M. Crawford, Harrisburg; A. T. Poffenberger, Sunbury; H. E. Westhaeffer, Williamsport; J. B. Lincoln, Renovo; S. A. Bonnaffon, Erie; R. B. Moore, Huntingdon; H. W. Pownall, Tyrone; W. B. Diefenderfer, Altoona; C. F. Hough, Cresson; C. W. Banks, Derry; D. M. Easter, Youngwood; W. K. T. Sahm, Pittsburg; J. B Hillman, Pitcairn; J. C. Lemmer, Oil City. Reading Railway—Dr. Casper Morris, chief. District No. 1, office, Columbia Avenue Station; F. E. Brister, Francis S. Ferris, Norris S. McDowell. District No. 2, Reading: Charles A. F. Detweiler, Albert F. Bronson. District No. 3, Pottsville: Thomas F. Heebner. District No. 4, Tamaqua: William H. Brothers.

Dr. Samuel W. Latta informed Dr. Dixon that each car, containing a case of any contagious disease, was fumigated, the inner surfaces washed down with bichloride solution, and allowed to stand with windows raised for twelve hours. Dr. Casper Morris stated that similar precautions were taken on the Philadelphia and Reading Road.

CHICAGO.

Chicago's New Medical Magazine.—*Surgery, Gynecology and Obstetrics*, a new international magazine of surgery, edited by a staff of the most eminent surgeons and physicians, made its first appearance in Chicago this week. This new publication will be issued monthly, and is the only one of its kind in the West, and one of but three in the entire country. Dr. Franklin H. Martin is managing editor, and Dr. Allen B. Kanavel associate editor. The other members of the regular editorial staff are: Drs. John B. Murphy, E. Wyllys Andrews, F. A. Besley, C. S. Bacon, Rudolph W. Holmes, Nicholas Senn, J. Clarence Webster, E. C. Dudley, John C. Hollister, William R. Cubbins, and C. V. Bachelle.

Comparison of Death-Rate for First Six Months of 1905 With Same Period of 1904.—At the close of of the first six months of the year it may be pre-

dicted, with a fair degree of certainty, that 1905 will establish a new record for the healthfulness of Chicago. This prediction is based on the fact that the average annual death rate of the first six months of each year during the ten years, 1895-1904 inclusive, was 15.51 per 1,000 of population. For the last six months of each year the average was 14.43, or 7.48 per cent. lower. The rate of the first six months of 1905 is 14.09—the total deaths being 13,918. If the second six months should be 7.48 per cent. lower than the first six months its rate will be 13.04, the total deaths for the year about 26,800, and the annual rate for 1905 will be 13.56—the lowest ever recorded for Chicago. The lowest previous was 13.88 per 1,000 in 1901—a year of unusual healthfulness throughout the world. While there were 224 fewer deaths from all causes and at all ages, 672 fewer between the ages of five and sixty years, and 445 fewer over sixty years than in the corresponding period of 1904, there were 894 more deaths under five years of age. Of this excess less than 50 per cent. is accounted for by the unusual prevalence of some of the contagious diseases of infancy and childhood—most markedly measles and whooping cough. There were 185 deaths from measles, or 169 more than last year, and 258 more from whooping-cough, or 237 more than last year. An examination of the records shows that of the remaining 50 per cent. excess of under-five-year deaths, a certain share is due to an unusual proportion of deaths at this age period from the acute intestinal diseases, from bronchitis and from pneumonia. While the first two show increases of only 31 and 20 respectively and pneumonia shows a decrease of 563, the number of deaths from these diseases among children was much greater than last year. For the rest, an increase in the developmental affections of infancy—premature birth, injuries at birth, congenital debility, heart defects, etc.—is responsible. Compared with last year the death-rates of cancer, consumption and diphtheria are substantially unchanged; pneumonia is 12.4 per cent. less; nervous diseases, 22 per cent. less; typhoid fever, 27 per cent. less, and scarlet fever 63 per cent. less. Suicides increased 55 per cent.

CANADA.

Medical Matters in Hamilton, Ont.—Owing to disagreement with the Board of Trustees of the Hamilton General Hospital, Dr. Freeman, the medical superintendent, resigned, Dr. Walter Langrill, the Medical Health Officer, succeeding him, and Dr. Roberts, of Hamilton, succeeding Dr. Langrill.

Few Insane Now in Ontario Jails.—Dr. R. W. Bruce Smith, Inspector of Asylums and Prisons for Ontario, has just completed a tour of inspection of the institutions in the eastern part of the province, and reports that there are very few insane people confined in the common jails in that part of Ontario. In the Toronto jail there were at this time last year no less than thirty-six lunatics, while at the present time there are but three.

Dominion Aid to Consumption Sanitaria.—The joint committee of the Senate and House of Commons of Canada, to consider measures for checking the spread of tuberculosis met on July 6, at Ottawa, and appointed a subcommittee to devise plans to reach the Government. It was the consensus of opinion of the members of both houses present, that the Government should make a substantial grant toward the work of erecting sanitaria in different parts of the Dominion.

Manitoba Medical College, Winnipeg.—The annual calendar of the Manitoba Medical College makes some important announcements, chief of which is that operations have commenced on a new building adjacent to the Winnipeg General Hospital. The faculty has also been enlarged to a total of twenty-nine members by the addition of the following practitioners of Winnipeg: Drs. A. J. Douglas, O. Bjornsen, G. Hiebert, C. C. Field, W. Rogers, H. Mackay, S. J. Elkin, A. J. Burridge, and W. Webster. The five-year course has also been adopted. The new college building will afford accommodation for all branches of medical study for many years to come.

Annual Report of the Royal Jubilee Hospital, Victoria, B. C.—The fifteenth annual meeting of the Board of Directors of the Provincial Royal Jubilee Hospital of Victoria, B. C., was held during the latter part of June in that city. The chief event of the past year in connection with this hospital was the opening of the new Strathcona wing, and the most important item in view is the proposed children's ward. The number of patients treated during the last hospital year amounted to 1,058, as against 1,048 for the previous year. The total collective days' stay was 21,307 days. The daily average number of patients shows an increase of 4.43. The cost of maintenance during the year amounted to $36,294, and the daily average cost per patient was $1.70. Dr. Edward Hasell is the resident medical officer.

New Sanitaria.—A sanitarium for consumptives is to be erected near Holland, Man. The site for the Provincial Sanitorium for Consumptives of British Columbia has been chosen. It is to be at Savonna, B. C., and will first make its appearance as a canvas settlement, the patients being all housed in tents. Mr. Thomas McCormack, of London, Ont., has placed $3,500 at the disposal of the National Sanitarium Association, for the erection of a cottage on the grounds of the Muskoka Sanatorium. The Salvation Army is erecting a fine new hospital in Winnipeg, Man., to have a frontage of 150 feet. It will engage fifteen nurses and will be ready for occupancy by January next. A new wing is being added to the Western Hospital, Montreal, which, when completed, will enable this hospital to accommodate 500 patients.

Toronto Doctors Endorse New General Hospital Scheme.—"And those who came to scoff remained to pray" might be said of a gathering of Toronto physicians called together July 6, for the purpose of entering a protest against the proposed grant of $200,000 which the City Council of Toronto will give toward the erection of the new General Hospital, which is—in a large measure—to provide facilities for clinical work in connection with the medical faculty of Toronto University. It is understood that the fervent exhortations of Dr. Charles Sheard, Toronto's Medical Health Officer, were largely responsible for the conversion of the recalcitrants. After he had explained what he would recommend to the City Council, there was a great rush for the penitent bench, there being only three "doubting Thomases" left in the outer darkness. Operations will soon be gotten under way for the best equipped hospital in Canada, as there is now in sight an even million of dollars to commence with. Dr. J. W. Rowntree, of last year's house staff, has been temporarily appointed superintendent, in succession to Dr. O'Reilly, and the hospital management is advertising for a superintendent—either a business or a professional man.

Annual Meeting of the Ontario Medical Council.—The Council of the College of Physicians and Surgeons of Ontario held their annual meeting in Toronto during the past week, when the following officers were elected for the coming year: President, Dr. A. A. Macdonald, Toronto; Vice-President, Dr. W. H. Moorhouse, London; Registrar, Hon. Dr. Pyne; Treasurer, Dr. H. Wilberforce Aikins. During the course of the meeting, which took up the greater part of the week, numerous subjects of importance, both to the profession and the public, were discussed. One question discussed was that of Christian Science, the entire matter being left in the hands of the Legislative Committee, consisting of Dr. W. H. Moorhouse, London; Dr. J. L. Bray, Chatham, and Dr. Spankie, Wolfe Island, together with the Past President, the Hon. Dr. Sullivan, who will determine whether it will be wise in the interests of the profession, as well as in the interests of the public, to approach the legislature, asking for the abatement of the evil. This same committe will also place before the Government the lack of accommodation for the treatment of the consumptive poor of the province, and will ask that substantial aid be given toward municipal sanitoria. The official prosecutor reported that during the past year fifty-two cases had been dealt with, in twenty-four of which convictions had been secured, while nine left the country, eleven dismissed, and six not proceeded with. The financial statement was satisfactory, showing a reduction of the mortgage loan on the medical building of $5,000. The receipts amounted to about $35,000, and there was a balance on hand of $5,764.92, in spite of the fact that there was a good number of practitioners throughout the Province who were in arrears for their annual dues. The Property Committee reported that they had decided that at the present time it would be unwise to proceed with the sale of the building which was ordered by Council a year ago. Owing to the fact that there had been some agitation to have the annual examinations held at London, in addition to Toronto and Kingston, the solicitor was asked for his opinion of the matter, who interpreted the clause in the Ontario Medical Act to the effect that special legislation would be required from the legislature to provide for the holding of examinations at other points, as specified in the act, namely, Toronto and Kingston.

GENERAL.

Roosevelt to Doctors.—At the convention of the Association of Physicians of Long Island, held at Oyster Bay, on Wednesday, President Roosevelt delivered the principal address.

Iowa and Illinois Central District Medical Association.—The annual meeting of the Iowa and Illinois Central District Medical Association was held at Schützen Park, Davenport, Iowa, July 13.

The Fourth's Death List.—*The Chicago Tribune's* list of Fourth of July casualties throughout the country as revised on July 5, shows: Dead, 54; total injured, 3,157; by fireworks, 1,258; by cannon, 294; by firearms, 446; by gunpowder, 706; by toy pistols, 373; by runaways caused by explosions, 80. Total fire loss, $251,317.

Doctors Leave the Raybrook Hospital.—A meeting of the Board of Trustees of the State Hospital for Tuberculosis, at Raybrook, N. Y., has been called to appoint a successor to Dr. Pryor, the superintendent, who has resigned. Dr. Merriman, a member of the staff, has also resigned. Dr. Pryor will reside in Saranac Lake, where he will resume the practice of medicine.

American Pharmaceutical Association.—The fifty-third annual meeting of this association will be held at Atlantic City, N. J., September 4 to 16 inclusive. Application for membership may be sent to the Secretary of the Committee, H. M. Whelpley, 2342 Albion Place, St. Louis, Mo., up to September 1, after which date they should be sent to him in care of The Islesworth, Atlantic City, N. J.

New Jersey Bars New York Doctors.—The New Jersey State Board of Medical Examiners has decided to cease indorsing New York medical licenses for the present. This is retaliation against New York. The board's resolution says: Whereas, The educational and examining standards for the medical license of New Jersey are at least equal in all respects to those of New York and in some respects higher, and Whereas, The degree of unreasonableness in the matter of inter-State indorsement on the part of New York cannot be further ignored; therefore be it Resolved, That on and after October 16, 1905, the date of the next regular meeting of this board, the indorsement of medical licenses issued by New York will be suspended until further notice.

Railway's Ban on Doctor.—The Connecticut Railway and Lighting Company has posted on its bulletin board in Ansonia, Conn., the following notice: "Whenever you have occasion to summon a physician to attend an injured person you will please bear in mind that the company has an arrangement with most of the practising physicians of Ansonia, Derby and Shelton, to respond to emergency call. Dr. W. H. Conklin is an exception to this rule. Superintendent Beardsley." Dr. Conklin has had many railway cases, and in recent suits his testimony had weight with the court in awarding damages. The doctor has had the notices printed and mailed to the conductors and motormen because, he says, he does not wish the men to forget the rule in their excitement when an accident occurs and call him, which would jeopardize their places.

Mysterious Eye Disease in Central Africa.—The *London Mail* reports a somewhat remarkable eye disease as at present prevalent in several parts of British Central Africa, Northwestern Rhodesia, and in Portuguese Zambesia. At first it was noticed in cattle, sheep and goats, and only recently was it found to have attacked the natives. The disease is at present raging from Port Herald, a British station on the Zambesi, right on toward Tete, a distance of over 200 miles, and at this latter place it is reported to be quite an epidemic. Mr. William Arnott, a traveler, who recently returned from Tete, states that he observed hundreds who were suffering from the disease, and a large number were totally blind. One of the sights of Tete on a Sunday morning is the long lines of blind people who enter the town to beg, each line being led by a child.

Come Back Blue From Panama.—Many canal employees were among the sixty cabin passengers who arrived on July 5 from Colon aboard the Panama Railroad's steamship Advance. They took a pessimistic view of the sanitary situation on the Isthmus. Some declared that not more than 10 per cent. of those who were needed by the Government in clerical work were able to attend to their duties, and that many more cases of yellow fever existed than were officially reported. Aboard the Advance was the body of Samuel Hirsh, who died of yellow fever in Panama. Three passengers by the Advance were detained and sent to Hoffman Island for observation because they had unusually high temperatures. They are George Baylor, an en-

ginger on one of the boats of the Canal Commission; Edward P. Penick, a laborer, and Frank Namact, a boilermaker.

New Superintendent for Bellevue Hospital.—Dr. Samuel T. Armstrong, medical director of the Washington Life Insurance Company, has been suggested for Superintendent of Bellevue and Allied Hospitals. It is thought that he will receive the appointment at the next meeting of the Board of Trustees. Dr. Armstrong is a native of St. Louis and received degrees from the St. Louis University and the St. Louis Medical College. For ten years he was in the United States Marine Hospital Service.

American Hospital in Turkey.—The trustees of the American Hospital and Training School for Nurses, to be established at Constantinople, Turkey, met recently and adopted plans for the establishment of the hospital. Among the trustees are Henry O. Dwight, author of "Constantinople and Its Problems," James S. H. Umsted, editor of the *Wall Street Summary;* the Rev. Charles H. Richards, the Rev. Charles H. Creegan, Ernest Abbott and Omar H. Carrington. Dr. Thomas Spees Carrington is to have charge of the hospital. He has been engaged in practice in Turkey and knows the local conditions. He will take with him several American trained nurses and they will train Turkish girls to be nurses and will go into Turkish homes and teach the mothers how to reduce the rate of infant mortality. In the past half of the Turkish babies have died in infancy and the need of a modern hospital with all the best American appliances and medicines for treating sick children is great. In the course of time an infant incubator will be added, but Dr. Carrington said yesterday that he would not take one with him on his first trip. The hospital staff will also endeavor to remove the Turkish prejudice against surgery, which now makes the practice of that profession a precarious undertaking in the Ottoman Empire. "The Turk is not as violently opposed to surgery as he once was," remarked Dr. Carrington. "If a patient dies under the knife the surgeon is no longer sewed in a bag and given a chance to swim the Hellespont. Nevertheless the surgeon whose operation is unsuccessful is liable to be made defendant in both civil and criminal actions instituted by relatives of the deceased." Checks in aid of the hospital should be made payable to Brown Bros. & Co., bankers, 59 Wall Street.

OBITUARY.

Dr. GEORGE M. SCHWEIG, who for many years was in the service of the Board of Health, died on July 5, at his home, No. 2880 Broadway, New York. He was born in Germany sixty-three years ago, and came to this country when nine years old.

Dr. H. M. STOKES, a well known physician of Philadelphia, shot himself on July 7, at his home in that city.

Prof. HERMANN NOTHNAGEL, the well known clinical authority and author of important medical works, died in Vienna on July 7. Papers were found in the professor's room in which he had described his symptoms for hours before his death, including those of three severe attacks of coma. Hermann Nothnagel was born in the Province of Brandenburg, Germany, in 1841. He was graduated from the medical school in Berlin in 1864 and immediately became a teacher, serving in Königsburg, Berlin, Breslau and Jena. He was appointed professor of clinical medicine in Vienna in 1882 and was the author of a number of well-known medical text-books, among which are "Pathology of the Nerves," "Use of Drugs," "Diagnosis of Brain Diseases," "Researches in the Physiology and Pathology of the Intestines," and a "Handbook of Medicine."

SOCIETY PROCEEDINGS.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON GENITO-URINARY DISEASES.

Stated Meeting, held February 15, 1905.

The President, Ramon Guiteras, M.D., in the Chair.

Epithelioma of Penis, Amputation of Entire Penis, one Testicle and Two-Thirds of Scrotum with Transplantation of Urethra, Recovery.—Dr. Follen Cabot, Jr., reported the case of a German, forty-one years old, single, who had syphilis sixteen years ago, for which he had little treatment. He first saw him in the City Hospital last November. His family history was good. The disease of the penis began as a pimple under the foreskin, and in eight months had involved the whole penis in a gangrenous slough and destroyed the penile urethra. The scrotum was as large as a cocoanut, and when seen by Dr. Cabot it was filled with pus and extravasated urine. A urethral opening was made in the perineal region and two-thirds of the scrotum, all of the penis, inguinal glands, and one testicle removed. The patient made a perfect recovery, and now urinated without difficulty.

Cancer of Penis.—Dr. Follen Cabot, Jr., presented a man aged forty-seven years, who had never had intercourse in his life, and also who had never retracted his foreskin. A pimple had appeared under his foreskin which had increased in size and had extended to within one-half an inch of the pubis. He said that Dr. Lilienthal had stated that, in a large experience, he had never seen a cancer of the penis appear in a man of the Jewish race. This patient had been under observation for about one year. A small piece of the growth was removed and examined microscopically. Reported to be epithelioma. An interesting point in the case is the absence of involvement in the inguinal glands, although the disease has been present on the penis a year. The pathologist who made the examination was not perfectly satisfied with the findings because an insufficient amount of the growth was given him.

Dr. L. Bolton Bangs, after examining the patient carefully, said that there was no doubt in his mind about the diagnosis, but the condition had remained quiescent so long he did not know. He believed this man required as radical an operation as the first case reported by Dr. Cabot.

Multiple Fistulæ of the Perineum.—Dr. Ramon Guiteras presented a patient that had been shown before the Academy about five years ago. He had had an extravasation of urine following a rupture of the urethra. When he was first presented he had multiple sinuses which could not be cured at the time. His reason for presenting him was because he wished the opinion of the gentlemen present, and asked their advice regarding operative measures. The old scars were shown. When first seen he had had extravasation for forty-eight hours, and the retention of urine began with so much pressure on the tissues outside the urethra that it caused a compression of such a degree that he could not urinate and the scrotum seemed to be on the verge of gangrene. Six incisions were made and a purulent material was squeezed out, so that he had been enabled to pass a catheter into the urethra; this was left in situ and a wet dressing applied. After this the patient was able to urinate, but the sinuses developed, and, at this time, he had been presented to the Academy. One of these sinuses ran from behind the corona down beneath the testis, a distance of about six and a half inches. Some of them came through the penis and two

were in the perineum. Numerous suggestions were made regarding the treatment of the fistulæ, and, as a result, he performed a perineal section, draining the bladder, and then proceeded to treat these strictures by the injection of carbolic acid in some and iodoform emulsion in others. The long fistula, however, was the one that caused the most trouble, and which he had puzzled the most over. He threaded a probe with iodoform gauze and pulled it through, and so irritated the sinus; this was left in place for twenty-four hours and then withdrawn. This set up an adhesive inflammation and healed the fistula. There were some that did not heal and to which he applied the negative pole of a battery, and with success. The perineal wound closed and then an instrument could be passed through the urethra. A constriction took place and a second perineal operation became necessary; after that a sinus remained in the perineum. During the last two years some contraction had taken place in the cicatricial tissue, so that, when the patient urinated, with the exception of a few drops, it came from the perineum. Two months ago another operation was performed, a perineal section and an internal urethrotomy, with drainage for four or five days, and then he could pass a No. 32 soft rubber catheter through the urethra, and allowed it to remain for four weeks. When it was withdrawn the perineal wound was nearly closed. Sounds were passed for some time. Two weeks after leaving the hospital a No. 21 American sound passed readily. The urethra was still of large size, and there was a very slight fistula present. The probabilities were that it would again contract, and must be operated upon. Sounds should be frequently passed. The case was of particular interest because of its rarity and because of the fatty deposits between the areas of fibrous tissues.

Extrophy of Bladder.—Dr. Ramon Guiteras presented this patient, a strong and healthy man, who had had an extrophy about four inches in diameter. The pubes was separated at the symphysis between three and four inches, and the result was that the corpora cavernosa extended backward from the membranous or prostatic urethra to its insertion. The only thing remaining to be seen was the penis, which was in a state of hypospadias. In other words, it was simply a glans attached to the prostatic portion, without any apparent penile portion. The ejaculatory as well as the prostatic ducts could be seen. There were about twenty-four or twenty-five openings of prostatic ducts, which extended up into the prostatic follicles besides the ejaculatory ducts. The patient had suffered a great deal since childhood, and had tried a great variety of urinals, but without relief; the result was that he at all times had a leakage of urine, causing much chafing. At last he gave up trying to use any urinal, and went about with trousers continually wet. His bladder was very much inflamed, and at all times mucus could be seen on its walls as well as ulcerations. The patient wore ulsters summer and winter, which he could keep away from the irritated surface by holding his hands inside of its folds. His occupation, a blacksmith, kept his body flexed, and so the clothes were kept away from the raw surfaces. When the question of operation came up he was given the choice of a plastic operation, taking a flap from around the bladder, or a transplantation into the rectum, and it seemed to him that better results could be had by doing the plastic operation. The transplanting of the ureters into the rectum, while attended with success, caused at the same time a very irritable condition of the rectum. In time the rectum could hold a certain amount of urine, yet the urine escaping from the rectum would produce an irritation about the anus and the cleft between the nates and perineum. Again, the rectum itself might become inflamed. In these cases there usually occurred later on an extension of the inflammation up the ureters and into the pelvis of the kidney and giving rise to a pyelitis, and the patients usually died from a pyelonephritis. The operation Dr. Guiteras performed was a modification of Wood's, simply a skin flap being made, measured so as to cover the wall of the bladder. In this patient the skin of the abdomen seemed to be devoid of hair. If hair had been present electrolysis would have first been done. He brought the flap down over the bladder, freeing the edges of the skin about its circumference and the bladder, beveling both. He brought the skin flap down to the base of the bladder and sewed it there; then he took two inguinal flaps and brought them over the raw surfaces; these flaps came in contact with the new surface of the abdominal flap from the patient. Then the sides of the prostatic portion and glans which were made raw on their outer surface were brought together and sewn. The prepuce below was taken and split laterally and brought over the glans. The mucous membrane was dissected up so as to give a larger flap of raw surface of mucous membrance and prepuce, which was sewn into the bottom of the anterior flap coming down from above. Catheters were introduced into the ureters and brought out through a canal made by the plastic operation. A soft rubber catheter was also introduced into the bladder through the urethra. Dr. Ayres had charge of the case after Dr. Guiteras left, and the patient's recovery was most uneventful. In a great many of these cases a number of plastic operations have to be performed, but in this case there were but two sinuses remaining, one healing about three days after operation, and the other less than three weeks. They both healed spontaneously. The denuded area above was covered by skin grafts taken from the thighs. Without further operation the artificial bladder was able to hold urine, and he attributed this to the fact that the urethral catheter had been introduced into the ureters and, in this way, the urine had been carried directly to the outside and had not come in contact with the bladder wall. But Dr. Ayres had stated that after two days the ureteral catheters would not drain, and the soft rubber catheter was left in the bladder. He believed this was the secret of the rapid healing of the wounds in this case. There was at present no leakage, and the patient was up and about and could hold two ounces of urine while standing and more when reclining. As contraction further took place he would be able to hold more and more. Later irrigations of the bladder would be practiced, and this would tend to dilate it and make it hold more. Even if this patient lived a catheter life the result would be almost as good as if he had but slight control of the bladder. His prostate was about one-half an inch up from the anus. Before the operation one could palpate the prostate because of the absence of the pubes. Six weeks after the operation the patient experienced his first erection, which showed a beginning activity of the genital apparatus, and this he believed would be followed by even more activity of the internal genitals. When the patient was born, if the pelvis had been strapped and pressure applied, the pubic bones might have become approximated.

Dr. Martin W. Ware asked Dr. Guiteras if a microscopical examination had been made of the fatty deposits. Or was the condition not a false elephantiasis, due to an interference with the lymphatic circulation, because of the many incisions necessitated.

Dr. L. Bolton Bangs said that multiple fistulæ, due to obstructions in the urethra, should be treated by gen-

erous and radical removal of the obstruction, together with perineal drainage of the bladder of sufficient duration to satisfy the operator that all indications of infection were no longer present. With regard to the second case, he thought Dr. Guiteras was to be congratulated upon the results he had obtained. He had seen cases in which there was a minimum of separation of the pubic bones, but with loss of the structures above the pubes. They all had suffered the same. All the cases were miserable creatures and seemed to him to be degenerates in some way. Even if one succeeded in the primary operation, and the patient did not require a secondary one, much had been done for the individual, but they generally required several operations, and even then the result was not satisfactory. The last patient he attempted to operate upon he could do nothing because the patient nearly died from chloroform poisoning. This patient was a young man of considerable intelligence, but he too was a degenerate in other ways. Recently he had received a letter from his mother in which it was stated that his pusillanimous nature had disappeared, and that he had developed some of the traits of manhood, becoming more and more of a man as time went on. Dr. Bangs said he knew of no better operation in these cases than Wood's.

Dr. William K. Otis said that extrophy of the bladder was one of the most distressing affections, and although many operations had been devised for its relief the results were almost uniformly bad. Therefore, he thought Dr. Guiteras was greatly to be congratulated upon his success in this instance.

Dr. Guiteras said, in answer to Dr. Ware, that he believed there was a pseudo-elephantiasis present. He had had no microscopical examination made of the fatty deposits; they might not be fatty, but some other soft tissue. With regard to the extrophy of the bladder case the patient was operated upon less than two months ago, and he certainly thought that in such a short time the patient had made an excellent recovery, although it would require some time before the cystitis became cured.

Plastic Operation for the Cure of a Recto-Urethral Fistula.—Dr. Martin W. Ware presented this patient to show a sucessful effort in curing what is conceded to be a very bad form of fistula occurring between the rectum and urethra. The patient one year ago contracted a urethritis while in Europe, but consulted no physician. Four months later he came to this country and was shorly afterward admitted to the Mt. Sinai Hospital for the following symptoms: An intense desire to pass his urine associated with a very great deal of rectal tenesmus; there was some temperature and pain in the perineum; also a discharge from the urethra, there being both a posterior as well as an anterior urethritis. Examination revealed a very tender but not large prostate. The secretions contained gonococci. The treatment instituted four months after his attack of gonorrhea was an expectant one; he was not irrigated, but simply kept at rest in bed, and hot rectal irrigations and hot sounds used. The vesical tenesmus continued, and after one week the pains became so severe, with retention of urine, that it became necessary to use the catheter. The rise in temperature led to the suspicion of an abscess, and this was verified by rectal examination, a fluctuating point being made out. Because of a freer discharge of pus from the urethra the treatment outlined was continued a few days, but as the patient became septic it was deemed advisable to give freer vent to the pus. To verify its presence, a puncture was made into that part of the prostate which bulged into the rectum, and pus was evacuated. With a few strokes of the knife the abscess was drained by way of the perineum. As the patient was about to undergo the operation he said that he had a discharge of pus from the anus. Two weeks after healing of the perineal wound took place, but urine began to be discharged from the rectum; at first urine passed through the rectum as well as through the perineal fistula. The perineal wound was then tamponed, but a large fistulous opening in the rectum, which caused the patient great discomfort for many weeks, persisted. Nothing could be done to prevent the water being passed by way of the rectum, notwithstanding the perineal wound had closed. Perineal section was again performed, and a communication was found to exist between the membranous urethra, at a point close to the prostatic apex and the rectum. The opening in the rectum was rather a long slit and the fistula funnel-shaped, with the apex of the funnel towards the urethra. The fistula was excised, the rent in rectum sewed with Lembert sutures, and the opening in the urethra likewise, and catheter à demeure left in situ for ten days, and the bowels kept costive as long as fourteen days. Six weeks later, when he was discharged from the hospital, his urethritis still persisted. Since then an epididymitis set in and further treatment of his urethritis was deemed inadvisable. He presented this patient particularly for the reason that some years ago Dr. Tuttle had presented a case of recto-urethral fistula and emphasized the fact that nonsuccess attended any operation as a rule, and that certain difficulties were encountered which he had endeavored to overcome. He cited a number of authorities to prove how very difficult it was to cure these cases. The operation Dr. Tuttle advised, Dr. Ware believed, from a technical standpoint, to be a difficult one, and the space for manipulation was very small indeed.

Dr. Follen Cabot, Jr., said that the only case of recto-urethral fistula that had occurred in his experience followed a prostatectomy where he tore through into the rectum, the opening being the size of the end of a finger. He sewed it up at once, taking but one stitch, and no further trouble resulted. It was not, strictly speaking, in the urethra, but more in the perineal opening.

Dr. Henry G. Spooner asked whether there was a proctitis of gonorrheal origin in the case reported. Ten such cases had been reported in which gonorrhea of the rectum had been occasioned in this way, *i.e.*, through the recto-urethral fistula.

Dr. Ramon Guiteras said he admired Dr. Ware's courage in reporting such a case. He said he had gone into the rectum three times while doing perineal sections. In looking through the literature there were but few men who reported such accidents, and he began to think he was the only one who had committed such an act until conversations with his friends proved differently.

Dr. Martin W. Ware said he once had the misfortune to get into the rectum while doing a prostatectomy; the rent was sewn up, and the patient made a prompt recovery. He referred to another patient, an old gentleman of eighty years, who was doing very well after a prostatectomy, but, in giving an enema, the nozzle was pushed through the rectum. In reply to Dr. Spooner's question, I wish to state that the prostatic abscess revealed no gonococci, although the pus from the urethra did. The pus from the prostatic abscess showed pure cultures of staphylococci.

Instrument for Cocainizing the Deep Urethra.—Dr. L. Bolton Bangs presented this instrument, using in it a preparation called "neurococaine," made by Schieffelin, pure pellets of it being very soluble in the

natural moisture of the urethra. With this instrument Dr. Bangs could deposit the pellet at any spot in the urethra, and anesthetization of the part rapidly followed. The best time for operating was from five to six minutes after the pellet had been deposited. The major portion of the prostatic urethra could be thus anesthetized, but more than one pellet might be necessary. Each pellet contains 1-12 grain of pure cocaine.

Dr. J. Bentley Squier had had some practical experience with the instrument, and laid emphasis upon the necessity of keeping the pellet perfectly dry until deposited. Even before introducing it into the instrument it should be perfectly dried.

Apparatus for Suprapubic Drainage of the Bladder.—Dr. Ernesto S. L. Blascutti presented this apparatus.

New Method to Aid in the Detection of Stone in the Ureters and Kidneys.—Dr. Follen Cabot, Jr., said that although several methods for detecting stones in the ureters and kidneys were spoken of, it occurred to him that the sense of hearing could be utilized for this purpose. Accordingly, with the aid of the stethoscope first, and then later the phonendoscope, he had devised an instrument which he believed would be of considerable assistance. A whalebone bougie, thirty inches long and with a blunt end, was placed in the catheter and one end received into the diaphragm of a phonendoscope. The slightest sound of a stone could be detected accurately by this means. This was simply a preliminary report and the result of considerable experimental investigation.

Concerning the New Electro-Cystoscope.—Dr. William K. Otis said that the invention of the new electro-cystoscope has completely revolutionized our methods of diagnosis in vesical disorders, even extending to a determination of some of the lesions situated in the kidney itself, giving definite information regarding conditions which formerly could only be surmised, and may well be considered one of the great advances of modern surgery. The credit of this brilliant invention belongs entirely to Dr. Max Nitze, of Berlin. It differs entirely in principle, design and scope from any method for the ocular examination of the bladder which preceded it, and subsequent instruments have been modifications of this one. Over twenty-five years have passed since the first cystoscope was presented to the profession, and although the incandescent light has been added since its invention no one has succeeded in improving the ocular apparatus, and the cystoscopes of to-day are no better than those made in 1887. The electro-cystoscope presents many difficulties in the making; not only does the workmanship require the most experienced and skilled mechanic, but one who thoroughly understands the construction of electrical instruments and has a thorough knowledge of optics and the ability to construct and even originate a complicated ocular system. With the aid of a skilful electrician Dr. Otis had been able to present in 1899 the first electro-cystoscope manufactured in this country and until this time it was impossible to have one repaired without sending it abroad. One of the faults of the instrument was the difficulty of securing a larger field. After many experiments and many failures this obstacle was overcome by entirely eliminating the prism and substituting in its place a hemispherical lens, the plane surface of which was silvered, a portion of the circumference filling and closing the window in the outer tube of the instrument. This overcame the objections pertaining to the use of the prism as a means of diverting the rays, enlarging the field, and increasing its illumination. Dr. Otis then presented an instrument which resembles in general the cystoscope of Nitze, but differs from it in several important features. It consists of two separate parts, the external catheter, or sheath, carrying the illumination, and the internal, or telescope, in which the entire optical apparatus is contained. The lamp is of peculiar construction, of wonderful brilliancy and freedom from heat. One pole of the lamp is carried on the metal shaft itself, the other by a specially insulated wire, and permits of the use of a telescope several sizes of the French scale larger than that of other instruments, thus allowing the passage of a greater amount of light with a corresponding brilliancy of field. Dr. Otis described the difference in insulation compared with the Leiter instrument, and showed how the mechanism of his lamp was manipulated. He also described the ocular apparatus, and said that after the instrument is well in the bladder if the fluid in the bladder becomes cloudy on account of bleeding or the presence of pus it is only necessary to remove the telescope, the sheath acting as a large catheter permits the rapid withdrawal of the fluid contents of the bladder, which can be refilled, the telescope replaced and the examination continued without the loss of a great deal of time, and without removing the instrument. This is much more effective than the so-called irrigation cystoscopes. To describe this complicated instrument in detail was unnecessary, as it is the practical advantages that interest surgeons, and in this cystoscope these are: A field having an area four times as large as that of any other rectangular cystoscope, so that it is practically impossible to overlook a pathological condition in the bladder. The field is clearer and brighter on account of the more powerful illumination of its lamp, the greater caliber of the telescopic tube, and the arrangement of the lens system. The lamp has such a low amperage that it emits very little heat, making it quite impossible to scorch or, as has happened, to seriously burn the bladder wall. This cool, powerful lamp, together with the protection of the lens from being smeared during introduction, permits the use of air as the examining medium, whenever it is considered advisable. The short beak and the absence of the flat top and sharp angular sides of the prism render it easy of introduction and less liable to cause bleeding. Should the medium in the bladder become clouded it can be rapidly withdrawn and replaced without removing the instrument. The exquisite workmanship of the instrument will challenge comparison with foreign cystoscopes of the first class.

CHICAGO MEDICAL SOCIETY.

Stated Meeting, held March 8, 1905.

General Blastomycosis.—Dr. Daniel N. Eisendrath exhibited a case of general blastomycosis. Beautiful examples of the organisms of the disease were obtained from the ulcer on the patient's leg by Dr. Ormsby. He said the disease was first brought to our attention some seven or eight years ago, since which time there have been quite a number of cases recognized and reported. The disease is characterized clinically generally by one lesion, but with more or less general infection. It is characterized locally by the fact that the edges of the lesion are raised, sharply demarkated from the surrounding normal skin. These contained a number of small miliary abscesses. Another characteristic of the surface was a peculiar wart-like or papillomatous condition of the ulcer. It was upon this, even without a microscopical examination, that the diagnosis of blastomycetic dermatitis was made, concurred in by eminent dermatologists, and the patient brought to the Cook County Hospital. The patient was a Bohemian, forty years of age,

and first noticed a small, circumscribed abscess which appeared upon the left side of the chest, which healed after the use of medicine, patient noticed an ulcer forming upon the place where the largest ulcer existed at the present time—the posterior surface of the right limb. This had gradually enlarged. Patient had an ulcer of the typical blastomycetic type on the left heel, two on the right leg, one of which was large. He had an abscess that formed spontaneously upon the anterior aspect of the right elbow; and some characteristic warty excrescences covered by some crusts under his chin. The author discussed the differential diagnois of this disease from tuberculosis verrucosa cutis, from carcinoma and syphilis.

Diffuse Septic Peritonitis Following Appendicitis.—Dr. Eisendrath presented three patients illustrating the progress surgeons were making in the treatment of diffuse septic peritonitis complicating appendicitis. These patients were operated on at a period ranging from twenty-four to seventy-two hours after the onset of the disease. In one of the cases perforation occurred into the free peritoneal cavity. In one there was no perforation of the appendix, but there was a virulent type of appendicitis which was generally recognized as streptococcic, with general invasion of the peritoneum. These patients could not have been saved, he said, five years ago with the methods then in vogue, and the profession had to thank one man for helping us to improve the percentage of recoveries in these cases—Fowler, of Brooklyn, who, in 1900, published a paper in which he recommended the Fowler position in operations for diffuse septic peritonitis, together with flushing freely with salt solution, inserting drains, and instead of letting the patients lie flat on their backs, propping them up in bed or elevating the head of the bed, the object being that pus would not gravitate toward the diaphragm where the large lymphatics were, and by inserting drains in the pelvis one could get rid of the pus more quickly than by any other method.

Hodgkin's Disease.—He showed a well-marked case of Hodgkin's disease, which he intended to subject to the X-ray treatment. Dr. Eisendrath also reported a case of skin-grafting by the Wolf method; a case of encapsulated tubercular peritonitis, and a case of non-development of the testes in a man, thirty years of age.

A Case of Aortic Insufficiency.—Dr. Rosalie M. Ladova read a paper with this title, in which she quoted a case. The patient, Mrs. W. S., American, aged fifty-two years, housewife, family history negative. Personal history: At the time of the Civil War the patient sought medical advice for attacks of dyspnea, and was then informed of a heart lesion. She had recurring attacks of dyspnea, but had no medical attendance until January, 1903, when the attacks increased in severity, and edema of the lower extremities reached above the knees. Recovery followed, and she was without medical supervision again until January 6, 1904, when Dr. Ladova saw her for the first time. She found her in a state of extreme dyspnea and cyanosis, with a pulseless wrist and subnormal temperature; restlessly tossing herself in a vain effort to get her breath, with a look of despair in her eyes. She was a picture of distress. For the stertorous respiration, the heart sounds were inaudible; the cardiac impulse could not be felt. Under stimulation and the use of the morphine she rallied and was much improved; the attacks recurred on the tenth and eleventh; she became unconscious and delirious; while her pulse responded to stimulation, her mental state remained the same, and she died in the evening of the eleventh. Contrary to instructions, patient was fed fermented preserved peaches and corn starch pudding, which undoubtedly precipitated the end. Pulsation in the carotid and thyroid arteries; throbbing in the superficial veins of the neck; cardiac impulse diffuse; pulse 76; not of the water-hammer variety; temperature 94.4° F.; respirations 26; apex in the sixth interspace in the nipple line; only a moderate degree of arteriosclerosis; heart dulness from the third rib to sixth interspace in the nipple line, one inch to the right of the sterum; lower border about two fingers' breadth below the costal arch. Moist mucous râles in posterior lobes; diastolic murmur at the aortic area, heard all over the precordia, transmitted down the right border of the sternum; round ulcer on the anterior surface of the thigh. Urine showed a trace of albumin, otherwise normal. Pathological diagnosis—post-mortem—showed insufficientia valvulæ aortæ, hypertrophia cordis; atheromatosis aortæ; emphysema pulmonum; œdema pulmonum; hydrothorax dextra; concretio pulmonis sinistræ cum pleuræ perietalis; hydro-pericardium; infarctus hemorrhagicus pulmonis dextræ; tuberculosis obsoleta apicis sinistræ; morbus Bright's chronicus; hyperemia mechanica hepatis et lienis; myomata uteri; pelvio-peritonitis obsoleta; hydrops ascites; gastritis chronica; epithelioma cruris dextræ; anasarca et marasmus universalis. The clinical interest in the case centers in the almost miraculous recovery, in view of the post-mortem findings, from an extremely severe attack of angina pectoris, and impending paralysis of the heart, and in the probable further improvement, frustrated by a dietic error. Other unusual features were diffuse transmission of the murmur within the precordia and its limited transmision outside of the same; pulse not intermittent and not of the water-hammer variety, quickly responding to simulation; impaired temperature sense. Etiology, outside of only a moderate arteriosclerosis, lacking. This lesion is rare in females. Of 53 cases collected by Babcock, there were only 7 in females; urine normal with a distinct renal lesion; extreme multiplicity of post-mortem findings.

Complete Perineal Prostatectomy by Young's Technic.—Dr. Jacob Frank read a paper on this subject, in which he reported two cases. The first case, Mr. C. B., aged seventy years, consulted him May 15, 1904, complaining of having been troubled with frequent and painful micturition for nine months, passing very little urine at the time, and after having had to resort to the use of the catheter several times at intervals during this period, he had been compelled to lead daily catheter life for the past five months, suffering agonizing pains, insomnia, anorexia, loss in weight, a great deal of residual urine, quantity in twenty-four hours, 58 ounces, specific gravity 1.023, with albumin present, no sugar, abundance of pus cells, and also some squamous cells. Reaction was acid; no blood; urea 2.1 per cent. in twenty-four-hour specimen. The albumin reaction was thought to be due to the presence of pus. The family and personal history otherwise negative. Patient has double inguinal hernia and lipoma in the right groin. He was sent to the German Hospital May 29, 1904; put to bed; kept on a strict liquid diet; urotropin, 5 grains, was administered every four hours; lithia water given in abundance; boric acid irrigation of the bladder daily at a temperature of 110° F., and the daily use of the prostatic catheter, as the soft rubber catheter could not be introduced. Normal salt solution twice daily per rectum, as the patient was emaciated and required careful preparation. The gland could easily be palpated through the abdomen, especially per rectum. The lateral lobes were greatly enlarged, as was also the median, and not very tender, not as hard and immovable as the one in the second case. The operation was

performed June 2, 1904, four days after admission to the hospital. Young's method was used, and chloroform anesthesia employed. The patient was put in the exaggerated lithotomy position; a grooved sound as a guide for urethrotomy was introduced into the urethra; an inverted-shaped incision was made, the apex of which was just over the posterior bulb, and the two arms, each about five centimeters long, midway between the anus and ischial tuberosities. After exposing the superficial muscles by blunt dissection, the central tendon was caught by a clamp near the bulb and divided; this freed the sphincter and levator ani from their anterior attachments, and exposed the rectum, drawn forward by the recto-urethralis muscle. This muscle was then divided and the membranous urethra brought into view. This latter step not only exposed the membranous urethra, but prevented injuring the rectum. After exposing the membranous urethra, the muscles were retracted and the apex of the prostate brought into view. The membranous urethra was opened on the previously introduced grooved sound, and the edges retracted with transfixed silk retractors. A No. 30 French sound was then introduced through the urethral incision into the prostatic urethra and bladder, and the sphincter dilated with an easy to and fro motion of the sound. The prostatic tractor, closed, was then carried into the bladder, while the edges of the urethral wound were held apart by the silk sutures. As soon as the beak of the tractor was free in the bladder, the thumbscrew, which fixes the blades in position, was loosened, the blades rotated 180° by means of the external blades, and fixed by tightening the thumbscrew. The instrument was then handed over to an assistant, who made enough traction on the instrument to bring the gland clearly into the field. Lateral retractors were now placed so that, together with posterior retractors and the traction produced by Young's tractor, the entire posterior surface of the gland was exposed. The capsule was now incised to a depth of 1 cm. on each side of the median line for almost the entire length of the posterior surface of the gland, the two lines being convergent, the widest part measuring 1.8 cm., the narrowest, 1.5 cm. The bridge of tissue contains the ejaculatory duct, and hence in some of Young's patients sexual potency was not impaired. By means of blunt dissection, and with the aid of Young's forceps, the right and median prostatic lobes were enucleated piecemeal. The left lobe was enucleated *in toto*, measuring 5 by 8 cm. The tractors were then withdrawn, and a double drainage tube introduced into the bladder through the opening in the membranous urethra, the inlet tube being about one-third the size of the outlet tube. This double tube was fastened with a suture to the upper angle of the perineal wound. The lateral cavities left by the enucleation prostatic lobes were packed with plain gauze, and the drainage tube connected with a siphonage arrangement, and continuous irrigation with normal salt solution, 110° to 120° F., thus kept up, the flow being regulated by means of a screw clamp in the inlet tube. The irrigation was commenced on the table to prevent blood clots forming within the bladder. On the second day after the operation the patient developed an orchitis on the left side, very likely due to the extreme force used by the assistant in making the traction. The swelling was successfully treated with ice-bags, and elevation of the scrotum. The rectal temperature for the first week ranged between 100° and 103° F.; pulse between 78 and 98. The temperature was due very likely to orchitis, and also to the temperature of the irrigation fluid flowing so near the rectum. No shock. Pain for the first few days was relieved with one-quarter of a grain of morphine administered hypodermically. Two hypodermic injections in all were used. On the second day the gauze packing was loosened, and some of it withdrawn every day until the sixth day, when all of the original packing was removed, and the superficial wound kept open thereafter with a small gauze pack. The patient was allowed to sit up in bed with a backrest on the fourth day. At the end of the week the continuous irrigation was stopped, and the drainage tube withdrawn. On the ninth day a No. 28 French sound was introduced through the urethra into the bladder, when a soft rubber catheter was carried into the bladder through the meatus, fastened, and the bladder irrigated twice daily with boric solution through this catheter. Five days later the catheter was withdrawn, no urine yet coming through the meatus, as the perineal opening was too large. On the nineteenth day the patient voided some urine through the meatus, but most through the perineal opening. From this day on the patient pased more urine daily through the natural channel, and at the end of the fourth week most of the urine pased through the natural opening at intervals of every two hours. With a 30 or 31 French sound his urethra was sounded every other day, and irrigated once every day after the second week. In five weeks after the operation the patient left the hospital with a very minute perineal fistula, which was dresed daily. At the end of the sixth week all was healed, patient urinating every three to four hours. The urine was quite clear, and there is no residual urine. He enjoys very good health, eats and sleeps well, and has gained considerably in weight. He was impotent before the operation, and is so now. Dr. Frank narrated another case in a man of sixty-two years, in which the result following Young's method was very satisfactory.

Chloride Retention in Nephritis.—At a recent meeting of this Society, Dr. Joseph L. Miller read a paper in which he said that a review of the literature since Widal and Javal's original communication showed quite uniform confirmation of their views, that patients with acute and chronic parenchymatous nephritis have marked inability to eliminate chlorides. As a result of the retention, the patient increases in weight, due to edema. The albumin in the urine, following the ingestion of ten grams of sodium chloride daily is increased and the patient may develop symptoms resembling uremia. In animals with artificial nephritis the use of salt increases the albumin. The organs of patients with nephritis show excessive sodium chloride. Kovesi has shown that nephritics after the ingestion of large amounts of NaCl do not perspire, due to increased osmotic pressure of the blood, and the edema is the result of this retained fluid. As it has been shown that ingestion of large amounts of salt may increase the edema, due to portal obstruction, cardiac insufficiency, and even the inflammatory edema, many believe the chloride retention is of extrarenal origin. The author has studied two cases of acute and seven of chronic parenchymatous nephritis. The chlorides were estimated by the Salkowski-Volhard method for nine consecutive days. For three days in the middle of this period the patients received in addition to their food ten grams of sodium chloride daily. All showed a retention of ten to twenty-five grams during the three days. The edema became more marked, the patients gained in weight, and the amount of albumin increased. Two patients showed uremic symptoms following the extra sodium chloride. Four normal individuals were examined in the same manner, and all showed a chloride retention equal to the nephritis. They also gained in weight. From this it is concluded that

these patients developed an undetectable edema, while in the nephritics, with the tissues already waterlogged, a moderate increase in edema could be detected. These patients did not show any albuminuria or uremic symptoms. As a final conclusion, in this matter, there is no doubt that the sodium chloride should be restricted in nephritis. The broths and soups contain very large amounts of salt. That furnished the patients in Cook County Hospital contains 11.3 grams per liter. Subcutaneous injections of salt solution must be used with caution, if at all.

Present Limitations in Serum-therapy.—Dr. H. T. Ricketts read a paper on this subject, and said that inquiry into the value of diphtheria antitoxin and of tetanus antitoxin revealed the fact that the latter fell far below the former as to its therapeutic value. The antitoxin treatment of tetanus might be considered hopeless, at present. However, observations and investigations showed that there might be a brighter future for it; but subcutaneous injections of tetanus antitoxin had given poor results. Intracerebral injections of the antitoxin of tetanus reported by Roux had not been given a sufficient trial for one to judge of the actual therapeutic merits. The chief value of tetanus antitoxin was its prophylactic use, as it had been clearly demonstrated that if the antitoxin of tetanus was given to a patient in whom there was any suspicion or likelihood of the development of tetanus, the disease did not develop. A striking example of this was seen in Fourth-of-July wounds. In some of the Eastern hospitals, patients who had received wounds on the Fourth of July, and had been injected with tetanus antitoxin as a prophylactic, did not develop the disease. In a hospital in Prague, a threatened epidemic of tetanus was controlled by giving prophylactic injections of tetanus antitoxin to all inmates in the institution. The therapeutic value of diphtheria antitoxin was so well established and known that little or nothing need be said regarding it.

Bactericidal Sera.—In regard to bactericidal serums, practically no results of value had been obtained in the treatment of established infections by antityphoid serum, anticholera serum, or antiplague serum. Published statistics did not warrant the conclusion that so-called bactericidal serums were of any value in treating diseases. Antistreptococcic and pneumococcic serum were of very little value.

Plague and Late Cholera Epidemic in the Philippine Islands.—Dr. Paul C. Freer, Superintendent of Laboratories of the Philippine Islands, stated that the Philippine Islands had been visited by two cholera epidemics before American occupation, one in 1882, and the other in 1888, and in these years the mortality was very high. In Manila alone the records showed that there were as many as a thousand cases at one time, and proportionately a number in progress. Both of these epidemics were serious, and so far as could be discovered very little was done to check them. During both of these epidemics Manila had no water supply except from wells, and it was after the second epidemic of 1888 that one of the former Governor-Generals gave a donation to start the Manila water supply works, which was completed afterward. The third cholera epidemic occurred during the American occupation, and about three years after Americans landed on the Islands. Before speaking of the measures which were taken to limit the spread of the disease, Dr. Freer referred to the organizations in the Philippine Islands and the scant means at hand for limiting the epidemic. He also mentioned those who took an active part in stamping out this epidemic. In order to secure complete cooperation, the Philippine Commission established a Board of Health. This was composed of a Commissioner of Public Health, a Secretary, who was a Filipino, a Chief Health Inspector, and a Sanitary Engineer, who took charge of the engineering department, and a Superintendent of Laboratories. When the Board of Health was organized in 1901, it found itself practically without means. It had plenty of financial means, but it was without ambulances; it had no contagious disease hospital; it had no disinfecting wagons, and, in short, organization was very incomplete. Means of transportation were very poor, although these in times of epidemics were very important. The Board of Health undertook the work of equipping itself and preparing for future work. The City of Manila was divided into seven districts, each in charge of a medical officer, who were taken from the contract medical service. These officers, together with a corps of medical inspectors, began a system of house to house inspection. At this time the most serious disease confronting them was bubonic plague. They were having a number of cases a day, although the number had diminished markedly since American occupation. Still it was serious, and a recrudescence of the epidemic was feared, and for this reason the energies of the Board of Health were devoted toward diminishing the plague epidemic. Many of the facilites acquired for controlling the plague epidemic were put to good use subsequently in dealing with cholera. Three weeks after the organization, a large barracks was constructed which would hold twenty-five hundred people. This was for the sole purpose of isolating plague patients.

When plague occurred in a house, the patients were taken from it to the hospital, thus leaving the premises free for disinfection, etc. About December, 1901, three months after the plan was first discussed, there were constructed six barracks, which would accommodate a thousand people comfortably, and during the cholera epidemic they took in as many as twenty-four hundred at one time. The Board of Health procured eight or nine ambulances and equipped itself as well as it could with disinfecting apparatus, etc. Whenever plague was suspected to exist in a certain house, a member of the laboratory staff was called in for diagnosis, and if the case proved to be plague, the patient was taken to the hospital, or, if he died, to the morgue, and a radical alteration of the house undertaken, either its destruction by fire, if beyond repair, or complete rebuilding. It became necessary to destroy and rebuild whole districts in the city, altering the houses, putting in new floors and walls, new windows, and in this way plague was eradicated completely from the districts where it was prevalent. The main weapon against plague was the destruction of rats. The Board of Health undertook this work and in the first month destroyed about two thousand rats, after which the number ran up to as much as twenty thousand a month. Fifty thousand rats were caught in the first three months. A very large number of rats were examined at the laboratory for the plague bacillus. Two hundred and seventy-two rats were found to be infected with plague and had come from various houses, and one-half of the houses infected with these rats were found and treated in exactly the same way as those houses in which there were human beings infected with the disease. These houses were disinfected, even burnt down, if necessary, or altered. They managed to diminish the number of cases of plague by these measures, so that in March, 1902, there was not a case of plague in the city, nor had there been one for three weeks.

Epidemic of Cholera.—With reference to the epidemic of cholera, the Board of Health, before the confirmation of the diagnosis by culture in the first two cases of cholera, had taken measures as if they were

cholera. The patients were isolated in a contagious disease hospital, poor as it was. The next morning there were five more cases, the following day twenty more, and before the end of the month there were over a hundred and sixty, with two or three cases coming from one particular district in the city. The houses in districts in which cholera was most prevalent were burnt first and the property appraised afterward, as it was found that it would take at east two weeks to appraise the property. Two thousand people were taken out of the infected district and transported in wagons, ambulances, etc. By carrying out these measures there was very soon a great diminution in the number of cases until finally the disease was entirely controlled and eventually wiped out.

Prophylactic Sera.—The question of prophylaxis and of the use of sera having become a serious one, a serum laboratory had been established, and under the Bureau of Laboratories, where formerly everything was imported from Japan, this laboratory now made all of the antitoxins and sera necessary for work in the tropics, including rinderpest serum, which was the largest item of all. The Board of Health had procured new ambulances, had enlarged its disinfecting corps, and had perfected district organization.

Tricuspid Obstruction; Report of a Case Associated with Mitral and Aortic Lesions.—Dr. Joseph M. Patton, in a paper on this subject, spoke of the frequency, etiology, morbid anatomy, symptoms and diagnosis, and prognosis of this condition, and cited an interesting case which was under the care of Dr. C. B. King, who furnished the history: Patient, M. H., aged twenty-four years; father died when she was two years of age. Mother died at patient's birth. No brothers or sisters. Married at the age of fifteen years; never pregnant. First saw patient in spring of 1900. At that time she was suffering from incompetency, exhibiting some edema of feet and limbs; lips and fingers purple, shortness of breath, and pain in precordial region radiating into both arms. The heart was greatly enlarged; apex seventh interspace, three inches outside nipple line; right ventricle one inch to right of sternum. There was a double murmur at both aortic and mitral openings. The first aortic sound was so loud and rough that it covered the whole of the front of the chest. She responded quickly to strychnine and digitalis; the edema of feet and limbs disappeared, and during the following summer she got along very well, doing some housework. The following November she again suffered from lack of compensation; edema of feet, limbs and lungs, and severe pain radiating to the fingers of both hands. Ventricles dilated, left reaching to midaxillary line; unable to lie down, eat or sleep; urine very scant and loaded with albumin and casts. Ordinary dosage of strychnine and digitalis produced no reaction; dosage increased at this time to digitalis, 17 drops, every two hours; strychnine, grains $^1/_{30}$, every two hours, for three days. At this time Dr. J. M. Patton saw her in consultation. Digitalis had produced nausea by this time, and a change was made to digitaline (Merck's German pure), grains $^1/_{16}$, every three hours, was given. In a few days there was a gradual response. Kidneys gradually improved, heart became competent, digitalis and strychnine reduced to $^1/_{30}$ of a grain of each three times daily. The following March she was able to leave the house and appeared at Dr. Patton's clinic. Since then, during the warm weather, she got along very well unless she became negligent with the strychnine and digitalis. At times she would go several weeks without medicine. During cold weather she had more trouble. In September, 1903, she spent the month in the woods of Wisconsin, and seemed to improve a great deal. During the winter of 1903 and 1904, she had two or three slight attacks of incompetency, but responded quickly to full dosage of strychnine and digitalis. In June of 1904 she suffered a severe attack of incompetency, and entered St. Luke's Hospital, was there for about six weeks, and from there she went to Grove House, Evanston, and remained there until about the middle of December, 1904. While there she had no medicine, except the supply that was given her on leaving St. Luke's, and which was soon exhausted. He saw her again on December 23, when she was suffering from all the symptoms of incompetency. At this time she did not respond to the large doses of strychnine and digitalis. December 27, she entered Mary Thompson Hospital, and died there December 29. Although the patient had recognized her physical limitations from childhood, she gave no definite history of rheumatism. He first saw the patient in November, 1900. Inspection showed forcible, heaving heart impulse, which moved the whole of the anterolateral portion of the left side of the chest wall. There was some systolic pulsation at the second and third interspaces at the left of the sternum. The cyanosis was very slight. Dyspnea was marked.

Palpation determined the apex impulse to be approximately in the seventh interspace in the anterior axillary line, the impulse being so diffuse that accuracy in location was impossible. The character of the impulse was distinctive of extensive dilatation of the left ventricle. A mitral presystolic thrill was felt midway between the mammillary and anterior axillary lines. It did not extend to the right of the mammillary line. A systolic thrill was felt at the area of pulsation before mentioned. There was no thrill along the left edge of the sternum Jugular and hepatic pulsation were absent. Percussion determined the lateral limits of cardiac dulness at the level of the fourth rib to be one and one-half inches to the left of the mammillary line on the left, and one-half inch to the right of the right sternal border on the right. Auscultation determined double aortic and mitral murmurs. The aortic systolic murmur was unusually loud and rough, and was transmitted over almost the entire front of the chest, being particularly pronounced from the second to the fifth ribs along the right parasternal line. The other murmurs had the usual characteristics, their points of greatest intensity being modified in accordance with the change in position of the heart. The diagnosis was in accordance with these findings, moderate dilatation of the right auricle and slight tricuspid regurgitation being recognized. The possibility of a tricuspid lesion was considered, but nothing definite was recognized. The autopsy, at which Dr. Patton was present, was made by Dr. King fourteen hours after death. There was considerable fluid in the pleural cavities, and a moderate quantity in the pericardial sac. No evidence of pericarditis. The heart weighed twenty-four ounces (normal for women, ten to twelve ounces). It showed extensive hypertrophic dilatation of the left ventricle, moderate of the right ventricle, marked dilatation of the left auricle, and considerable dilatation of the right auricle. The aortic opening is irregularly oval in shape, and measured 1½ by .5 cm. (average for women .9 inch). The upper surface of the ring presents an irregular, hard, rough ridge, without evidence of valvular structures. The inner surface is sharp and rough, while the lower is rough, irregular, and presents near the edge of the opening a calcareous vegetation a quarter of an inch long by about one-eighth in height. The whole ring is calcareous and of almost bony hardness. The mitral opening is oval in shape, and measured 2 cm. by ½ cm. (normal for women, 1.2 inch). The upper surface of the ring is hard and smooth, the inner surface rough. The valves are thickened, rigid,

with rough thick edges which form an almost continuous ring. The tricuspid opening is almost round and measured 1½ by .7 cm. (normal for women, 1.5 inch). The upper and inner surfaces of the ring are rough, irregular and hard. The valves are thick, retracted, and partly adherent at their bases. The cavity of the left ventricle measures five inches, from base of valve cusp to apex of cavity (average for women .3 inch). The wall measures over one inch in thickness near the base of the ventricle (normal, one-half inch), and one-half inch at thinnest part of apex (normal, one-quarter inch). The left auricle is much dilated and its walls are one-eighth inch thick. The cavity of the right ventricle measures 3½ inches (normal for women, $3^{3}/_{16}$ inches); its wall is one-half inch thick. The right auricle is somewhat dilated and its wall is one-twelfth inch thick. The physical changes in the heart in this case explain and are in accord with the clinical symptoms, which were those of aortic and mitral disease, and not at all indicative of tricuspid lesion. The absence of any hypertrophy of the right auricle shows that the tricuspid lesion had no such effect on the auricle as had the mitral lesion on the left auricle. While the tricuspid lesion is of considerable pathological interest, it has little bearing on either the clinical history and symptoms or on the physical changes in the heart. In these respects the case corroborates the majority of cases previously recorded, and illustrates the fact that tricuspid lesions have, as a rule, less clinical importance than other valvular lesions, and especially than those with which they are associated.

KENSINGTON BRANCH PHILADELPHIA COUNTY MEDICAL SOCIETY.

Stated Meeting, held March 7, 1905.

The Chairman, Jas. C. Chestnut, M.D., in the Chair.

The Treatment of Retroflexion of the Uterus. Based on Records of 653 Cases.—Dr. Barton Cooke Hirst read this paper, and stated that out of over 6,000 cases of diseases of women that had come under his observation in private practice, and at the Howard and University Hospitals, he had done over 1,400 plastic operations and 653 cases were treated for retroversion of the uterus, 506 of which were subjected to operation. He stated that the physician should consider three questions before advising operation or operating: (1) Is operative treatment satisfactory? (2) Is the physician justified in operating? (3) What form of operation should be used, in relation to each individual case? He believed, in young married women and in working-women, operation should be advised if there was no contra-indication, but in a case of adherent retroversion with exophthalmic goiter pessary treatment would be preferable. He also stated that some cases may be cured by the pessary, and in many cases it is necessary to use it for a time at least. He stated that the best method of procedure was the modified Alexander operation, as it presented the least proportion of recurrences and least difficulty in subsequent pregnancies, but can be used only in uncomplicated cases. The suspension method, he stated was the most generally available, the percentage of failures was small, and in the cases examined there were only three recurrences and in only one of these was there any congestion of a serious character. The vaginal fixation operation, he stated, had the highest percentage of failures and was the most difficult. The Jacksonian procedure of utilizing the coronary ligament he considered worthy of consideration. The cases of acute displacement following a sudden jolt, he recommended be treated without support. He cited two cases, one of a young woman who fell down a flight of stairs resulting in complete backward displacement of the uterus and another in whom the displacement was caused by a fall over a tub; in the former the uterus was in good position six months after replacement, and in the latter four years. The third case was that of a married woman who on examination after childbirth was found to have complete retroversion of the uterus. No supports except dry tampons were employed, and she was examined nine months later and found to have complete retroversion of the uterus. He recommended that during the puerperal period the patient be examined at the beginning of the fourth week, and if the uterus is out of place, it should be replaced, if necessary, by putting the patient in the knee chest posture, and pessary and tampons should be introduced, if necessary, after six weeks, and the treatment should be accentuated by Swedish movement and massage. Three cases, each of which had retroversion following several deliveries and were cured by the treatment outlined were cited. He referred to four cases in which the retroversion had been cured by subsequent pregnancy. Operation should not be done immediately following childbirth. He stated that he believed hard rubber was the best material usually available for pessary; aluminum he believed to be a good, exceedingly light and does not corrode, but difficult to obtain, and the pessary should be only just large enough to retain the uterus in position. The pessary should be removed once in eight weeks and cleansed by the physician, and vaginal douche of boric acid solution should be taken on the two days following menstruation and once between the periods. He referred to a case which he examined, in which the symptoms pointed to cancer; after removing a pessary the symptoms disappeared.

Ventrosuspension Operation.—Dr. Frank C. Hammond stated that while there were many operations for this condition, there was none that could be called an ideal one. He stated that he was glad to see that the author used the ventrosuspension operation. The operation of shortening the round ligament, he stated, did not give good results, and the Alexander operation he did not look upon as satisfactory, as it requires two incisions, which, if nothing else would increase correspondingly, the likelihood of subsequent hernia and also the likelihood of complications in subsequent pregnancies. He referred to a case which had come under his observation at the Samaritan Hospital in which a woman, forty-three years of age, in whom a fixation had been done two years before by an operator outside of Philadelphia, followed by adhesions which finally required another operation. He referred to another case which he had examined in which the woman had worn a pessary for two years for backward displacement of the uterus, and when he examined her it was found to be upside down, the woman reporting that she had repeatedly taken it out and washed it and reinserted it herself. He believed the pessary would give good results in selected cases, but before it is employed, we should ascertain (1) whether the uterus is pregnant and (2) we should make sure that it is free from lacerations and inflammatory disease. He referred to a case in which a physician had diagnosed anteflexion and introduced a pessary, which the patient could not wear, and she went to another physician who diagnosed backward displacement and also introduced a pessary. The patient then came under the speaker's care, and examination under ether revealed a fibroid in each anterior wall. He also referred to the uselessness of the employment of the pessary in cases of rectocele and

cystocele, without correction of the condition. He also called attention to the fact that in a certain percentage of cases of headache and backache, which were otherwise unexplained, backward displacement of the uterus was the cause.

Dr. Chas. L. Leonard referred to a case which was diagnosed as pelvic disease, in which examination under the X-ray revealed an imbedded pessary.

Dr. Shaller referred to a case in which a ventrosuspension had been performed three years ago at a hospital and proved to be a marked failure, because of the fact that the patient was at that time suffering from a tear of the perineum and cystocele and rectocele, and emphasized the importance of attention to such conditions.

Obscure Fractures Diagnosed by the X-rays.—That paper was read by Dr. M. K. Kassabian, who, after referring to the progress made in the various lines of medicine, stated that he considered that the Roentgen rays were the most important discovery of recent years from a diagnostic and therapeutic standpoint. He referred to the fact that subjective and clinical symptoms were not always present, in which cases the X-rays were particularly valuable as a diagnostic agent. The advantage of this method of diagnosis were cited as: (1) It is painless. (2) There is no necessity to wait for the diminution of swelling or for the removal of the bandages. (3) In addition to the positive diagnosis, it is possible to reveal the exact nature, position, shape and size of the fracture, and to differentiate between the fractures and displacements. Among the conditions in which it can be used with particular advantage were named fractures, epiphyseal conditions, displacements of the bones, tendons and joints, ostitis and periostitis, tumors of the bone, diseased joints, etc. He then exhibited a large number of lantern slides showing the practical application of the methods outlined in the paper, including fractures of the bones in all parts of the body, diseases of the joints, periosteum, etc.

Dr. Chas. L. Leonard felt that Dr. Kassabian had failed to sufficiently emphasize the importance of the X-ray in making a negative diagnosis of fractures, thereby avoiding the necessity of keeping the limb in splints for a considerable period, in addition to being able to immediately apply the proper treatment for the consideration. He referred to a case which had come under his observation, suffering with pain in the lumbar and cervical spine, and who had been walking with a crutch and cane, who was said to have had a fracture of the tibia and possibly injury of the hip sixteen years previously. Examination under the X-ray revealed no injury to the hip, nor was there any fracture of the tibia, but there was about half an inch of shortening of one leg. Examination of the shoes he was wearing showed that in one pair he had a correction of an inch and a half, and in the other pair an inch and a quarter, which overcorrection had produced curvature of the spine. The correction in the shoes was reduced to the proper amount, the man was sent to Atlantic City for a couple of weeks, at the end of which time he returned to the city with absolutely no pain, and a week later went to his home with no pain and the only correction was a half inch in that shoe. In regard to the accuracy of diagnosis, he laid especial emphasis that it was possible to tell whether or not a joint was involved, and also what was necesary to be done in order to preserve the functional power of the joint, and also emphasized the value of the X-ray in medicolegal work, and exhibited a number of slides illustrating the various points of his discussion.

Dr. Franklin Brady emphasized the value of the X-ray in the differential diagnosis of intracapsular fracture, and referred to a case where a man had been kept in bed three weeks with his leg elevated in a plaster-of-Paris cast, supposedly for a fracture, when examination by the X-ray at the end of that time revealed that no fracture existed.

Dr. Kassabian, in closing, referred to the fact that the diagnosis of hip-joint condition, was difficult on account of the thickness of the parts, and stated that he always tied the feet together and took a skiagraph of both hips at once, so that if there was any deformity due to fracture it would show.

BOOK REVIEWS.

Medical Diagnosis, a Manual for Students and Practitioners. By Austin W. Hollis, M.D., Attending Physician to St. Luke's Hospital, New York, and to the New York Dispensary; Physician-in-Chief to the St. Luke's Hospital Out-Patient Department. Series edited by Victor Cox Pedersen, A.M., M.D., of New York. Illustrated with 13 engravings. Lea Brothers & Company, Philadelphia and New York.

Condensation is from the medical student's point of view, much to be desired; but the task of compressing the whole practice of medicine, including nervous diseases, into "epitome" size might properly be placed among the superhuman efforts. For the best of authors must fail to do himself or the subject justice, when he is compelled to limit himself to a series of headings with a few brief paragraphs following each.

Still, as a pocket-book to serve for rapid review, after the subject has been studied out of a "proper" text-book, we know of none better than this volume; for, in spite of the obvious difficulties of the task, the work is extremely well done. The sections on diseases of the chest, infectious diseases and nervous diseases are perhaps the most comprehensive. The book is printed on thin paper and can be easily carried in the pocket.

Essentials of the Practice of Medicine. By William R. Williams, A.M., M.D., formerly instructor in Medicine and Lecturer in Hygiene, Cornell University Medical College; Tutor in Therapeutics, Columbia University (College of Physicians and Surgeons), New York. Double Number. W. B. Saunders & Company, Philadelphia, New York and London.

Such an extensive use of these Question-Compends means that they in some way meet a want; and there is no doubt that when well-written they are commendable *aide-memoires* or "ready reviews" for the hard-worked student.

The great difficulty of the author of such a brief work is to cover any subject at all; for space limits him to the merest dogmatic statement, without modification or suggestion of other possibilities. This author has wisely followed the classification of the standard text-books, and has devoted himself to making an abstract of each article therein contained. He has not gone afield for new things, or the methods of the specialist, but has given us a concise and simple résumé of those things which are standards in Physical Diagnosis, Nervous Diseases and General Medicine. The brevity is most noticeable under the head of Treatment, where often a single line or perhaps two is all the direction one gets, as in Arthritis Deformans, Mumps or Bell's Palsy. The symptoms, however, are particularly well abstracted, and give the book real value.

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ORIGINAL ARTICLES.

CLINICAL FEATURES OF THE BENIGN STENOSES OF THE PYLORUS.[1]

BY HENRY L. ELSNER, M.D.,

OF SYRACUSE, N. Y.

THE consideration of the Clinical Features of the Benign Stenoses of the Pylorus with their medical treatment, the subject which your presiding officer has invited me to consider in this symposium, would indeed seem to be hackneyed and threadbare were it not for its growing importance from a therapeutic standpoint. It may be said that we are passing through a transition period so far as the treatment of these conditions is concerned. Interesting experiences with individual cases, often unique, with the association of surprising pathologic finds which have finally cleared the horizon, still further justify the discussion which you have arranged for this meeting. The writer, in accepting your invitation, assures you that he fully appreciates the included privilege and honor. He will consider in his treatment of the subject those abnormalities, benign in character, within or without the stomach, which block its outlet sufficiently to interfere in any degree with the emptying of that organ or otherwise disturb its functions.

The benign stenoses of the stomach may be either (1) *functional*, or (2) *organic*. The latter may be either (*a*) congenital, (*b*) acquired. The acquired stenoses may be either intrapyloric or extrapyloric.

1. The *functional stenoses* are likely to be transitory, the patients highly neurotic. We have occasionally assumed the presence of *pyloric spasm* in cases where gastrectasia had persisted for months without producing symptoms, in which there followed periods during which the stomach became intolerant; there was peristaltic unrest with hyperacidity. In some the symptoms were aggravated by mental distress or other causes, including mainly those which ungeared the nervous system. Neurasthenia was always in the ascendency. In none of these cases did the evidences of stenosis become permanent, in none was there reason to suspect grave pathologic conditions.

There are also cases of *intermittent hyperchlorhydria without ulcer*, in which we assume the presence of pyloric spasm recurring at intervals of several weeks or months. There are severe pains, intolerant stomach, nausea, vomiting of large quantities of hyperacid fluid, severe headaches and often cerebral symptoms. With the epigastric pain, which may become severe, there is eructation of gas, visible peristalsis, constipation, a great thirst, complete anorexia. The total acidity is abnormally high so long as the symptoms persist, due to the presence of HCl. Young adults are most likely to develop these symptoms, and errors of diet, excessive use of sweets and mental emotion are leading factors. The chemical examination of the stomach contents differentiates these cases of probable spasm of the pylorus from ordinary migraine and gastric catarrh.

Occasionally we find a case of *acute dilatation* of the stomach with alarming symptoms, collapse without previous history of stenosis or other stomach disorder sufficient to direct attention to that organ. Some writers have reported deaths during such acute dilatation. Whether these cases are to be classified under pyloric spasm, as was suggested by Pepper and Stengel, has never been definitely decided. Robson and Moynihan speak of neuroparesis in connection with such serious, suddenly arising conditions. A few of these cases are recorded, promptly following operations in which it may be assumed that adhesions or other complications were more likely to have been the pathogenic factors than spasm or so-called neuroparesis. Two cases of acute dilatation seen by the writer seemed, in spite of the fact that there was no proof to justify the strong suspicion, due to overpowering toxemia. The true pathology of these serious and sometimes fatal cases can be decided only by the anatomic study of the individual case, when in all probability we shall find more than functional disorder.

Pyloric spasm may safely be considered secondary in the majority of cases and its presence must always lead to a strong suspicion of associated organic disease. On several occasions patients beyond middle life have been seen in consultation with symptoms of such spasm recurring at varying intervals, at times there was normal but gradually reducing HCl. production; in other cases the free HCl. was slightly reduced; in all of these lactic acid was absent. The end proved that we were dealing, at the time of the supposed spasm, with incipient malignancy. The urgent need of repeated chemical tests and physical examination at short intervals without undue haste to reach conclusions, must be emphasized in these cases.

The question has often arisen in my mind whether pyloric spasm is not occasionally present in neurotic girls, particularly during the menstrual period, with intolerant stomachs, marked and painful cramping of the organ, visible and persistent peristalsis. It is only exceptional that these hysterical girls have failed to vomit. The pain with peristalsis has persisted,

[1] Read before the American Gastro-Enterological Association, in New York, April 24 and 25, 1905.

yielding finally, not to alkalies but to appreciable doses of belladonna. The associated dilatation of the stomach has not persisted beyond the acute period.

It will be wise to hesitate long before diagnosticating a primary pyloric spasm in the adult, for it will be necessary to exclude organic disease by a thorough consideration of the separate functions of the stomach and the final elimination of mechanical organic obstruction at the pylorus.

Let us leave this part of our subject with the positive assurance that as we become more scientific we are the more thoroughly convinced of the rarity of functional disease and that, in considering the clinical features of pyloric stenosis, supposed to be dependent upon transitory nervous influences, we assume a mental attitude in which there is a fixed determination to accept such diagnosis, only after the greatest possible justified resistance.

2. *Organic Stenosis.*—A. *Congenital stenosis* of the pylorus may be of moderate degree, in which patients live for years with more or less continuous symptoms, a second class of cases in which the symptoms during the first year or two of life are sufficient to justify a suspicion of marked pyloric stenosis, in which, however, nature comes to the rescue, occasionally supplying such infants with almost normal functionating stomachs during life, and finally that serious class of cases in which symptoms are likely to follow birth, as a rule before the fourteenth day of life, never postponed beyond the ninth week (and this only rarely) in which death follows before the fourth month unless these infants are relieved by surgical interference.

It is not within my province at this time to consider the theories of the production of these stenoses known as spastogenic and hypertrophic, nor the Freund hypothesis which practically includes both spasm and hypertrophy as the cause of these. The writer recalls cases of congenital stenosis of moderate degree, in which all symptoms justified the diagnosis, which have yielded to proper treatment. Compensatory hypertrophy sufficient to overcome moderate mechanical obstruction must have followed. These cases include the child of a colleague in my own city with symptoms beginning at birth in which the child during the first two years of his life presented all of the symptoms of congenital stenosis, in which the boy, to-day twelve years old, is to all appearances perfectly well. In speaking to the father of the child while writing this paper, I was reminded of the fact that when the boy was one year old he weighed less than he did at birth, that his stomach was at that time still monstrously dilated, holding stagnant food, and that there was persistent peristaltic unrest.

The symptoms in all cases of congenital stenosis must follow birth immediately or cannot be long postponed. In four cases seen by the writer, three confirmed by post mortem, vomiting and other symptoms of indigestion first showed themselves, in the first before the end of the second day, in the second and third during the second week and in the fourth during the fourth week. In all of these cases there was marked visible peristalsis. It was by no means easy to detect the abnormally resistant pylorus; in all, the stomachs were greatly dilated, constipation and vomiting were constantly present.

Persistent vomiting in children, beginning after the ninth or tenth week of life, is not due to congenital narrowing of the pylorus. The majority of children with the congenital defect die before the end of the third or fourth month. Persistent vomiting in babes which begins shortly after birth is not as a rule to be interpreted as dependent upon congenital stenosis. Such conclusions would lead to great harm. Forcible projectile vomiting is quite characteristic of stenosis. The food seems to be held, only that it may be thrown far from the mouth and this suddenly, as a rule without warning. This is as true of breast-fed children as of those artificially and properly nourished. *No possible modification of the food relieves the symptoms where the stenosis is of high degree.* Single feedings may be held for a time and vomited with a second or third nursing. Couple these characteristics with marked visible peristalsis, even without palpable thickening, occasionally a high-pitched percussion note corresponding with the location of the pylorus, the physical signs of stomach dilatation, and the diagnosis becomes reasonably certain. Rapid wasting with many of the other symptoms found in the adult, as a rule ends the scene. *Congenital incomplete stenoses of the pylorus are frequently the cause of chronic disturbances,* as already mentioned, *which continue throughout life,* including marked and persistent gastrectasia, motor insufficiency, anomalies of secretion, symptoms of Leube's "nervous dyspepsia," including marked neurasthenia. These cases present a continuous train of symptoms with periods of marked exacerbation. While writing this paper such a case was sent to me in which a man forty-three years of age had never been without symptoms of stenosis and gastrectasia. The stomach is never free from stagnant food. His attendants have never failed to speak of his monstrous and persistent dilatation of the stomach, the palpable pylorus has been a surprise to all. This case is associated with hypersecretion and hyperacidity, peristaltic unrest, an enormously dilated, horseshoe shaped stomach. There is no history of ulcer. In spite of the relief of subjective symptoms by well-regulated treatment, the physical signs persist. Final gastric fibrosis, as described by Hanot and other French and German observers or the hypertrophic pylorus of Cruveilhier and Andral are sequelæ which materially influence the size and position of the organ as well as its functions in cases with almost parallel histories.

B. *Acquired Stenosis.—Intra-pyloric.* (1)

Cicatricial stenosis (chronic). The majority of benign stenoses are unquestionably due to ulcerative processes invading the pylorus. It is not always easy to get a clear history of preceding ulcer. That occasionally ulcers have existed without giving rise to symptoms there can be no doubt. As a rule, however, the previous history is direct, and close questioning with a thorough consideration of all that the case presents, proves the likelihood of previous destructive disease which justifies the reference of stenotic symptoms to consecutive cicatricial changes. If all cases of ulcer were associated with hemorrhage, chronic cicatricial stenosis due to this condition might be readily explained, for there is no symptom which the average patient remembers longer than hemorrhage, particularly when such alarming symptom is associated with severe pain. In these cases we are not limited to subjective symptoms alone or to the consideration of the previous history which may be vague and misleading. The physical examination of the patient, the absence of a large mass, the presence of dilatation, the revelations made positive by the stomach tube and an examination of the stomach contents, will be likely to clear the diagnosis. In those cases of chronic cicatricial stenoses which follow corrosive poisoning, localized phlegmonous inflammations and other chronic destructive changes, the previous history with a consideration of the clinical features and the absence of a large palpable mass will aid materially in confirming the diagnosis.

The writer feels justified in making the positive statement that in rare cases (and he has met with two of these in practice), there may be cicatricial stenosis of the pylorus following ulcer which has not undergone cancerous degeneration in which cancer nodules have been present in other organs of the body. The last case of this kind which came to his notice was that of a woman who had carcinoma of the uterus and liver with a benign cicatricial stricture of the pylorus. The persistent dilatation and evidences of benign stenosis covered a period of many years, following all of the classical symptoms of ulcer of the stomach.

(2) *Fibrotic stenosis.* (*a*) *General* and (*b*) *localized.* (*a*) *General gastric fibrosis* described by Brinton and Hanot may lead to far-reaching change in the mucous and submucous coats of the stomach, invading the pylorus as the process advances, causing a marked contraction and thickening of the entire organ with almost complete closure of the stomach outlet. In some of these cases the mucosa is so involved as to give many of the symptoms of atrophic gastritis with marked anemia, consecutive change in the secretory, motor and absorptive functions of the stomach. The organ is small, may present as a globular tumor, holds but little fluid. The use of the stomach tube gives valuable information. In some of these cases it is impossible, because of the thickened stomach wall, to inflate the organ. The differentiation of these cases presents great difficulty. They often resemble infiltrating cancer of the stomach.

(*b*) *Localized fibrous thickening of the pylorus,* likely to be annular, is occasionally found following previous conditions which may have given rise to but few symptoms and which were not dependent upon preceding ulcer. In these cases the ring-shaped constriction causes consecutive dilatation with its attending symptoms. It is not easy to palpate this small thickening of the pylorus in the majority of cases.

(3) *Hypertrophic stenosis, as described by* Cruveilhier and recently considered in detail by Boas, occasionally presents for diagnosis and treatment. We have seen this condition only at rare intervals, and where suspected we have not always felt that the diagnosis was correct. These cases are supposed to follow chronic gastritis with ultimate dilatation, in which the muscular and submucous tissue as well as the mucosa are finally sufficiently changed to give rise to constriction of the pylorus.

(4) *Stenosis dependent upon ulcer.*—Ulcer at or near the pylorus and in the first part of the duodenum with associated spasm, marked swelling which may be acute or due to secondary inflammation is unquestionably an occasional cause of pyloric stenosis. The pain is likely to be most severe as the food is ready to leave the stomach. An examination of the stomach contents materially aids in reaching satisfactory conclusions. In these cases the pain is out of all proportion to other complaints, there may be hemorrhage, with many other symptoms, subjective and objective of ulcer.

(5) *Acute inflammatory stenosis associated with infection, deep-seated gastritis and acute poisoning,* presents a train of symptoms coincident with these acute conditions, yielding as the associated inflammation subsides unless the changes are sufficiently deep to give rise to permanent lesions.

(6) *Syphilitic stenosis,* as described by D'Ursi and mentioned by others who have written on specific stomach diseases, is occasionally found with clinical features which do not permit of differentiation from other forms of cicatricial or inflammatory stenosis, save as we get authentic histories and, better still, results from antisyphilitic treatment.

(7) *Tuberculous stenosis* is occasionally associated with far-reaching disease of the stomach. Individual clinical experiences with this complication will always remain limited.

(8) *Stenosis dependent upon non-malignant growths,* fibromyoma, adenoma and polyp, described by Bouveret, Cornil and Chiari, only rarely found, may prove puzzling; the diagnosis can be made during life only after exploratory operation.

(9) *Stenosis due to distortion or traction,* giving rise to acute pyloric obstruction (Kussmaul, Albrecht and Riegel) dragging at a point in the

horizontal part of the duodenum by the weight of the stomach contents where the former merges into the vertical duodenum, firmly fixed against the spine, is relieved at once by emptying the stomach with the tube or by free vomiting. This condition is occasionally responsible in all probability for acute and alarming dilatation.

Extrapyloric Stenosis.—It is difficult to divine all of the unusual and unexpected conditions which may lead to extrapyloric organic stenosis. We never cease to wonder at these pathologic possibilities. Clinical and pathological experiences in this field are rarely repeated. Perigastritis, gall-stone disease, adhesions to neighboring organs, particularly to the liver and gall-bladder, distortions due to innumerable anomalies and pathologic changes invading the organs already mentioned, the pancreas and kidney, may produce narrowing of the pylorus, consecutive dilatations and all of the symptoms of pyloric stenosis. In a paper written a number of years ago on the "Vagaries of Gall-stones," the writer reported a case in which monstrous gall-stone masses with associated adhesions caused all of the symptoms of pyloric construction during an entire year. At the end of this time the hard tumor disappeared, for a few days symptoms of complete intestinal obstruction followed, preparation was made for operation, when nature came to the rescue. Gall-stones resembling cobbles in size were passed by the rectum and the patient, a woman advanced in life, made a perfect recovery and is still living, without a return of symptoms.

In the majority of cases, extrapyloric stenoses are recognized, though the pathological condition giving rise to these may not be determined. Perigastritis, peritonitis, perihepatitis, pressure due to pancreas tumors, large kidney masses and matting together of organs may be suspected as causes of extrapyloric stenosis.

In our study of the cases under consideration we must (1) give data which prove the presence of pyloric stricture, and (2) its benign nature must be established.

1. It is rational to suspect stenosis of the pylorus, whenever it is possible to demonstrate marked dilatation of the stomach with perceptible lowering of the greater and lesser curvature, recurring peristalsis from left to right (peristaltic unrest), which may or may not be painful, and may be and frequently is associated with ballooning of the organ; with either a palpable mass or thickening at the pylorus, more or less splashing and evidences still further of motor insufficiency, the latter made positive by means of the stomach tube, and such other refinements of diagnosis as are now used by all who study these cases closely which prove beyond peradventure the stagnation of food. *The fasting stomach found distended and containing food remnants must always arouse suspicion.* Stomachs may be abnormally large yet true ectasia with motor insufficiency may be absent. Megalogastria does not mean motor insufficiency or the inability of the stomach to perform its functions with fair satisfaction. Mechanical obstruction implies motor insufficiency sooner or later and this means inability of the stomach to empty itself with all attending subjective and objective symptoms. Stenosis present, the dilatation which is secondary remains, it is a permanent deformity. A stomach which is able to empty itself, but for some reason becomes dilated (true primary dilatation), does not remain permanently dilated as a rule. It is irrational to conclude that all enlarged stomachs are insufficient and that their pylori are stenosed. This physical condition must be associated with a knowledge of disturbed function before accurate conclusions are justified. Pyloric stenosis creates a decided disproportion between the stomach's task and its ability to perform. "Wo Arbeitslast und Arbeitskraft (as Riegel so prettily expresses it), einander nicht mehr, wie in der Norm, das Gleichgewicht haben." This fact explains all of the conditions consecutive upon mechanical obstruction at the stomach outlet. Alkaline contents are as a rule hurried through the stomach and, contrary to general belief, far-reaching change as in achylia gastrica shows no tendency to gastrectasia. We must always be suspicious, where there is motor disturbance with hypersecretion and hyperacidity, of existing stenosis. In these cases it may often be difficult to decide, in spite of evidences of stenosis and dilatation, whether the former is the cause of the hypersecretion. Not all benign stenoses are associated with hypersecretion.

One of the leading symptoms of stenosis is vomiting. Frequency and quantity of vomited matter vary in accordance with the size of the stomach and the degree of constriction. In advanced cases the quantity of vomited matter is as a rule greater than the quantity of food and liquid taken. The vomited matter with obstruction, shows the presence of food long since taken. Vomiting relieves these patients, a load has been removed, it is wonderful to see how encouraged they are, while this enormous pocket is filling only to empty itself again. The reaction of the fluid vomited, its appearance, odor and color depend entirely upon the nature of the underlying disease. Associated with this vomiting at intervals, which may indeed be considered the leading symptom of stenosis, is marked change in appetite, sometimes perverted, fickle or completely lost. Intolerable thirst with symptoms of stenosis, in spite of the fact that the stomach is receiving fresh water for its relief, is always suggestive that this is of high degree. In these cases there is monstrous gastrectasia.

As the secondary changes follow, the tongue becomes glazed, often dry, coated at times, or remains unchanged. Constipation is the rule. The general appearance of the patient suffers, malnutrition, malassimilation are soon shown with all the other ear marks of the disease.

Peristaltic unrest, recognized if the abdomen is sufficiently watched, even during the early stage of the disease, becomes a symptom of great value. Peristaltic unrest may continue with marked stenosis until the patient is far advanced in the disease, when the musculature of the stomach wall becomes so feeble as to refuse longer to make the effort to empty itself, or when, with degeneration and infiltrating disease, it finally ceases. Often, in cases of stenosis, peristalsis is materially increased or aggravated during the early stages by the administration of soda and tartaric acid as carbonic acid is released. Splashing is usually present; to be of value it must be associated with other symptoms and we must make sure that it is due to retained stomach contents. As a rule these patients are able to produce the characteristic sounds without the assistance of the physician. Physical examination of the stomach including usual methods, often gives valuable data and must be practiced to confirm subjective symptoms.

The stomach tube as a diagnostic agent is indispensable. It is necessary in order to gauge the degree of obstruction and the amount of insufficiency to know the length of time food is held in the stomach. In none of these cases are we to neglect the inflation of the stomach, either through the tube or by carbonic acid liberated by the administration of a sufficient quantity of sodium bicarbonate and tartaric acid. Simple as is this maneuver we may occasionally misinterpret the result. I recall a case in which inflation filled the abdomen with what was considered a dilated stomach, in which the colon was distended through a gastrocolic fistula. The case proved to be one of infiltrating malignant disease of the stomach communicating with the colon as a result of ulceration and adhesive localized peritonitis.

The urine presents changes which cannot be ignored. Its quantity is reduced, it is concentrated, likely to be alkaline and contain indican.

Tetany is a symptom of very great value in the diagnosis of gastrectasia dependent upon any of the causes enumerated. In spite of all that has been written on this subject the characteristic cramping and other alarming conditions in the majority of cases, this symptom is not always correctly interpreted and the average physician, because of its comparative infrequency, fails to appreciate its significance. I make this positive statement because of the very painful experiences which I have had in consultation practice. Symptoms referable to the nervous system, particularly neurasthenia, are frequent and predominate in cases of benign stenosis.

The heart, as the disease advances, may become ungeared, may partake of the general neurotic condition of the patient or may simply show increasing weakness with advancing disease. The presence of tumor positively connected with the pylorus or duodenum and symptoms of gastrectasia gives positive information.

If there is no tumor it may be difficult to decide between primary and secondary dilatation. In both conditions the subjective symptoms may be the same. In both we have seen peristaltic unrest and even bile in abundance mixed with the stomach contents with marked organic obstruction. In many of these cases, where repeated examinations of the stomach contents and close observation of physical signs have failed, we have applied the therapeutic test for purposes of diagnosis. We need not hesitate to subscribe to the statement of Mintz, Bouveret and Bevic that this often furnishes the only positive diagnostic means. Regulated diet, lavage of the stomach, alkalies in proper doses to meet underlying hyperacidity will, in primary dilatation be followed by material improvement, long periods of relief and partial return of motor sufficiency, as is shown by the tube and other tests. The alkalies probably relieve associated spasm. Such improvement with even temporary disappearance of symptoms we have never noted with true organic stricture of the pylorus, whether benign or malignant. It must be remembered that the quantity of retained ingesta and secretions are less in primary than in secondary dilatation, also that primary dilatation may recur with renewal of original symptoms. The presence of bile in large quantities with evidences of constriction would indicate its location below the papilla in the duodenum. The neurasthenic element is much greater in cases of primary than of secondary motor insufficiency.

2. What are the distinctive clinical features which justify the conclusion that the stenosis is benign?

Previous History.—Whatever the suspicions, there is no stronger link in the diagnostic chain than the knowledge gained by painstaking inquiry into the previous histories of these patients. In both men and women the incidents of childhood and puberty as well as the suffering of mature life demand most thorough investigation. It would be an insult to your intelligence if I were to rehearse the data which such study reveals. Included are the clinical pictures of the many primary conditions which have finally led to stenosis. Patients find no difficulty in recalling these; they cover, as a rule, long periods of suffering which have left indelible impressions. A patient with final stenosis and gastrectasia depending upon ulcer has never allowed the sequence of symptoms to fade from his memory; neither has the patient who suffers from perigastritis, far-reaching adhesions with gall-stone disease, forgotten the early or late attacks. Time and patience only are required to hew a way out and through this quarry to the open light. Our results are sufficient to reward the effort. Failures in diagnosis, particularly of the conditions under consideration, are too often the result of hurry and lack of attention to detail.

The *age* of the patient is an important factor.

The more advanced in life, the more likely is the stenosis to be malignant. This rule has its exceptions but they are few. Malignant disease presents a much shorter clinical history. While this may occasionally have latent periods, it is the exception. Chronicity with a long train of symptoms argues against malignancy. The symptoms of malignant stenosis are as a rule continuous, there is less likelihood of long periods of relief or marked periods of exacerbation. The wasting of the patient, the increasing muscular enfeeblement go hand in hand. The blood conditions are entirely different. If there is associated anemia and this is out of proportion to the cachexia, with evidences of dilatation, we are not as a rule dealing with carcinoma.

Heredity must always play an important rôle in the etiology of pyloric cancer. Benign constriction with palpable pylorus presents a much smaller tumor than does cancer. Whether this thickening is due to intra or extra pyloric involvement, there is never such characteristic nodular feel nor is there such suggestive hardness and resistance nor is the mass usually as large as in cancerous disease. Physical examination of neighboring organs and distant glands gives data of great importance. Distant glands as well as those in the abdomen need thorough investigation. Thus Troisier, several years ago, and Pitt in a recent article in the *Practitioner* (April, 1905), have called attention to the enlargment of the glands above the clavicle, particularly behind the left sternomastoid, in pyloric and stomach cancer. Rapidity of growth is characteristic of malignancy. The use of the stomach tube, the examination of the stomach contents, chemical and microscopical, give information which the evenly balanced clinician will add to such other facts as have been made clear by thorough study. It will frequently be possible to recognize by these added physical methods early organic change at the pylorus. Much has been said of the value of free HCl. in the diagnosis of benign and malignant disease of the stomach. I feel that I have no right to repeat on this occasion the results of chemical analysis of the stomach in detail which furnish us with facts for differentiation. There are, however, a few facts which it may be wise to give to the profession in connection with a paper such as is here presented. They are the following:

Stomach contents which show gradual loss of HCl. from time to time, with the addition of organic acids as the free HCl. disappears, evidences of fermentation, must lead to a strong suspicion of malignant disease. It occasionally happens that cases of pyloric cancer continue to show free HCl. to the end. Gradually fading hydrochloric acid, according to Jaworski may be due to the transition of non-malignant to malignant disease as well as to the gradual development of achylia gastrica in cases of mucous gastritis with more or less stenosis at the pylorus. This same change may also take place while malignant disease develops in the scar of an old ulcer and in the included tissue of a non-malignant ulcus ventriculi. Gluzinski makes the following statement: "If it were possible to recognize the transition of an acid gastritis into the mucous form and if, at the same time, it were possible to recognize that this change is due to the formation of a neoplasm and not to the simple cicatricial healing of an ulcer, then it would be possible to make an early differential diagnosis of malignancy." To accomplish this, Gluzinski makes three examinations of the stomach contents, one following the other on the same day. He first examines the remnants of the stomach contents early in the morning. The stomach is thoroughly emptied, chemical and microscopical examinations are made. The organ is then thoroughly washed, egg albumin is given; this is expressed after three-fourths of an hour. At noon beefsteak is given to be followed by the final emptying four hours later. These examinations are repeated several times at intervals of two or three days. If remnants of food are found in the stomach after fasting the question arises whether this is due to the simple atony of the stomach wall or mechanical obstruction, and we are thrown back to the same necessities of observation as before. Gluzinski places great importance upon the fact that with benign stenosis, particularly associated with ulcer, and its cicatrization, we find free HCl. present in varying quantities in all three examinations. It may be assumed that if at the first test, food remnants are found, at the second there is absence of HCl. or only faint presence, and after the beefsteak test marked reduction or complete absence of HCl. with lactic acid and bacteria, the stenosis may be considered malignant. If we find blood with the stomach contents in the wash water with particles of tumor, the diagnosis becomes easy. Lactic acid may be present with achylia gastrica, associated with chronic gastritis, especially when these conditions have more or less stenotic accompaniment. In pernicious anemia, lactic acid is sometimes present with gastrectasia. Here the blood picture must differentiate. It is a rule which cannot be too often repeated that with malignant disease the cachexia is out of all proportion to the anemia, whereas, in those forms of pernicious anemia with gastrectasia and atrophy, the anemia is out of proportion to all other symptoms.

The valuable reports which have reached us from Cohnheim's clinic, many of which are repeated in a paper recently published by Ackermann and Gompertz, which deals with the microscopical examination of the fasting stomach contents and its diagnostic value, when put into practice, added to the knowledge gained by chemical examination, give strong evidence which justifies more accurate differentiation during the incipient stages of the conditions under consideration. The microscopical examination of the stagnant stomach contents with the presence

of HCl. shows, in cases of hyperacidity and hypersecretion that the muscle fiber is partially digested, that the striae have more or less disappeared, that starchy food is not changed. Yeast cells are found in the stomach contents with stagnation. Observers find these in chains and when the stenosis is benign these are accompanied by sarcinæ. Sarcinæ are not found unless the stomach contents contains HCl. Hence, their presence argues, as a rule, in favor of benign stenosis save in exceedingly rare cases of ulcus carcinomatosis. In this latter condition, the test of Gluzinski added, will give valuable information and as the disease advances, if malignant, there will be a gradual decrease of HCl. and sarcinæ; finally, both will be absent when the HCl. is found replaced by lactic, acetic and butyric acids, the sarcinæ by the Oppler-Boas bacilli. The microscopical appearance when the disease is malignant shows quite a different picture. Cohnheim asserts that "about 99 per cent. of the cases with stagnation and Oppler-Boas bacilli or lactic acid are pyloric carcinoma, the remaining one per cent. being either gastritis gravis or a carcimona in the vicinity of the pylorus." Ackermann and Gompertz in their résumé make the statement that "Constant presence of pus, blood and possibly infusoria in the fasting stomach contents is absolute evidence of extrapyloric carcinoma." Still further, "Benign obstruction can be diagnosed early by the finding of sarcinæ, yeast cells in chains, or food remnants." "The early diagnosis of malignant obstruction of the pylorus can be made by the finding of the Oppler-Boas bacillus." There is no pathognomonic symptom of cancerous stenosis.

Large quantities of indican in the urine, an abnormally high urea output are always suggestive of malignancy. The more we deal with the diagnosis of these conditions, the more convinced are we that no other organ requires longer observation than does the stomach, before reaching conclusions which justify diagnosis. I know of no better dictum to place before the student and the hesitating practitioner than that of Leube to which we may unhesitatingly pin our faith in the differentiation of the conditions under consideration. I do not apologize for repeating it here. "Cancer of the stomach is present in all probability if the unquestionable stomach disease has attacked a patient between fifty and sixty years of age who formerly digested all food well. If such a person becomes dyspectic without an evident etiological factor, it may be assumed with considerable certainty that he is developing a gastric cancer." If this fact were better appreciated there would be a large addition to the credit side of accurate and early diagnosis.

Treatment.—When an internist, as conservative as was the late lamented Riegel, makes the following statement, "Gastrectasia following stenosis must be relegated to the field of surgery; in these cases operative interference alone leads to cure," any consideration of medical treatment would seem almost unnecessary. Our surgical friends have established the fact that surgery scores its greatest successes in the treatment of the conditions under consideration, and it is these cases that the internist must refer to them for permanent relief with encouraging and increasing confidence. Our labor will end in cases of extreme benign stenosis as soon as the diagnosis is made. There will always be cases, however, in which for some good reason, either because of moderate stenosis with the hope of ultimate compensatory hypertrophy and a sufficient gastric function, because of inherent weakness in congenital cases, complications in the adult contraindicating operation, or the refusal of the patient to submit to radical treatment, the physician will be expected to relieve symptoms and make the lives of these patients as comfortable as his art can make them.

Prophylaxis.—Little need be said on the subject of prophylaxis, for little can be done. It is wise to warn patients with ulcer and chronic gastritis against carelessness and it will be the duty of the physician to give such directions as will lead to lasting cure, including the avoidance of food bolting, overeating, dissipation, giving at the same time thorough instruction in such hygienic measures and methods of living and eating as lead to an improved resistance. Further, we must warn the patient against the overloading of the stomach after long periods of restricted diet or after conditions which have led to inanition. The following indications for the medical treatment of benign stenosis of the stomach seem justified:

1. *Such foods only to be taken as the dilated stomach with motor weakness can prepare to be forwarded beyond the point of resistance for further digestion.* The volume of food must be small, concentrated and thin. Diet in these cases can only be rationally prescribed when we depend for our indications upon the degree of stenosis and the absolute or relative weakness of the muscle. The indications are offered by the free use of the stomach tube, the examination of the stomach contents early and late, and the microscope. Foods must be given with a thorough understanding of associated secretory anomalies. It is far better to allow these patients to eat at short intervals, giving but little at a time, than to overload the stomach with the ordinary three daily meals. The quantity and quality of food can be easily determined if the physician will give this matter sufficient time. Experience teaches that in cases of extreme dilatation thirst is by no means relieved by the inordinate use of liquids. Von Mering has again emphasized the fact that fluids are not readily absorbed by the stomach. In these cases the stomach is still further distended by the excessive use of fluids which serve simply to deplete the patient still further by determining an extra supply of blood

to the organ, thereby increasing hypersecretion, aggravating nervous symptoms and occasionally provoking tetany. On the other hand, solid or dry food refuses to pass the obstruction. It is, therefore, wise to pursue a safe middle course, giving foods in concentrated mushy liquid form. For this purpose such liquids should be chosen which will serve to carry other articles of food readily digested and absorbed. Thus bouillon, chocolate, cocoa and milk in small quantities may serve as vehicles for eggs, meat solutions, stale bread, plasmon, somatose, Mosqueras' beef meal, tapioca, arrowroot, rice and many other articles of diet which will occur to the physician as he studies the case. The various gruels and beef juice properly prepared, meat essence, Leube-Rosenthal food, scraped beef, broiled fish, sweet bread, custard, omelet, moderate amount of butter, milk toast, Zwieback with milk, potato puree, spinach and squash are all borne in most cases. There are but few cases associated with hypersecretion and hyperacidity in which food passes the pylorus, aided by such methods as we have at our command, which do not bear scraped raw beef well and to this, with eggs and liquids in small quantities the writer has often pinned his faith with encouraging results. A moderate amount of coffee at breakfast is allowable in the majority of cases. Stimulants are contra-indicated save in extreme conditions. These patients need to be kept under perfect control. For this reason sanatorium or hospital treatment offers most encouragement. In many functional stenoses the use of olive oil or the emulsion of sweet almond oil, as recommended by Cohnheim, serves not only as a food, improving the general condition of the patient, but it seems to relieve spasm and friction. Rectal feeding is sometimes necessary.

2. *Seek to prevent stagnation of food with associated fermentation and the formation of organic acids.* This can best be done by the use of the stomach tube. In these cases lavage does yeoman's service. In the majority of advanced cases the stomach should be washed out twice daily, its contents siphoned at various depths, the tube introduced deep enough to relieve the stomach. Sufficient water should be used. A thorough knowledge of the shape and position of the stomach offers valuable indications for the successful use of the tube. Clean warm water without the addition of drugs is sufficient. Both in functional and organic cases the final flushing with cold water at a temperature of 50° F. seems to exert a tonic influence over the stomach and its musculature, in cases where the stenosis is not extreme. In order to get good and lasting results, this part of our work must be thoroughly done. Carelessness and undue haste or the empiric use of the tube can lead only to indifferent results. *Rational diet founded upon the knowledge gained by the use of the stomach tube and the microscope, with thorough lavage, become the most telling factors in the medical treatment of benign pyloric stenosis.* The accidents following daily lavage in these cases have been so few as not to discourage the treatment which most of us have found fairly successful.

3. *Assist so far as it is possible in the emptying of the distended stomach.* The methods already suggested with cautious massage, room gymnastics, the use of electricity (to which too much confidence has been given by some), with thorough attention to details and the use of drugs, such as shall be mentioned, are all that can be done to meet this indication.

4. *Prevent tetany and other nervous and distant symptoms.* Overcome neuropathic tendencies and conditions in functional stenosis leading to spasm. The writer is fully convinced that he has seen cases of tetany in which symptoms have been postponed by the timely emptying of the stomach. At the present time he has under observation a patient who refuses surgical interference, with benign stenosis, monstrous dilatation, hypersecretion and hyperacidity. Tetany can be promptly produced by the neglect of thorough lavage. It matters not what theory we adopt concerning the production of tetany, the fact remains that the majority of cases are associated with monstrous dilatation, residual stagnant food and hypersecretion. All facts warrant the prevention of such accumulation. Methods which overcome neuropathic tendencies and conditions which lead to functional stenosis require a thorough consideration of all that these cases present, attention to hygiene, exercise, diet and much detail which must of necessity occur to the thinking therapeutist.

5. *Improve the general condition of the patient and hold this at par or above par whenever possible.* This includes all of the methods already considered with such tonic treatment, moral suasion, change of air and scene as are indicated by the individual cases.

6. *Treat associated symptoms as they arise by rational and natural methods, including the use of drugs, attempting by these to overcome or counteract the effect of secretory and motor anomalies.* These indications cover a broad field of activity. Guard against pernicious activity. There is a strong tendency in the treatment of these conditions toward polypharmacy. The use of the alkalies and such remedies as act upon the secretions of the intestines and their musculature causing free movement of the bowels which tend to remain constipated, are indicated in many cases. Repeated tests give indications for the administration of alkalies or acids. With hypersecretion and hyperacidity we have recently had excellent results from the use of suprarenal extract and belladonna, combined with mechanical treatment and alkalies. With peristaltic unrest and functional stenosis, belladonna, gelsemium and cherry-laurel water have frequently relieved symptoms. Eserine and the remedies above-mentioned have relieved associated flatulence and

belching of gas. Strychnine, nux vomica and the bitter tonics have in many cases served to tone the patient and relieve symptoms. Spasm has sometimes been relieved by the use of small doses of atropine, the faradic current as recommended by Kussmaul; only rarely have we resorted to codeia. Recently, encouraged by an article from the pen of Haas-Brunn in the March number (1905) of *Die Therapie der Gegenwart* on "Eumydrin, ein Atropin-Ersatz, in der Therapie der Magen- und Darmkrankheiten," we have used the drug with some success. In no case has it been used long enough to offer positive conclusions. Resorcin, bismuth salts, benzonaphthol, Carlsbad salts and physol, made according to Merck's formula, may be used for the relief of troublesome symptoms.

With thiosinamine recently suggested, to be used hypodermatically (10 per cent. glycerin and water solution) and with the use of scopolamin the writer has had no experience. The galaxy of remedies suggested in our text-books proves conclusively that there is no single remedy upon which we can rely for the treatment of symptoms associated with stenosis of the pylorus. Rational and natural therapy, made as simple as possible, will prove most satisfactory.

ON THE RELATIONS OF SOME OF THE METABOLIC DISEASES TO INTESTINAL DISORDERS.*

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WHEN I was asked to contribute a paper on the relation of certain metabolic diseases to intestinal disorders, I consented to do so with some hesitation. I fully appreciated the fact that the well-being of the individual was intimately connected with the proper carrying on of the normal intestinal functions; also that many of the ailments the human organism is subject to are dependent upon derangements in the intestinal canal. My hesitancy was mainly due to the fact that I realized that but few, if any, of the diseases we are accustomed to designate as metabolic in origin, such as gout, diabetes, etc., are due essentially to disorders in the intestine. On considering the matter, however, I recalled that some of the more obscure and rare metabolic diseases have been attributed by investigators to disturbances in intestinal function. I thought that a review of some of the main facts concerning these diseases, particularly regarding alkaptonuria, ochronosis, and cystinuria, might be of interest to the members of the association.

I. Alkaptonuria and Ochronosis.—Alkaptonuria was first described by Bödeker[1] in 1859. The characteristics of the urine in this condition are briefly as follows: When voided it has a normal appearance, but rapidly acquires a deep-brown color and ultimately becomes black on exposure to the air. The brown color is greatly intensified by the addition of an alkali, its development being accompanied by the absorption of oxygen from the air. The urine is of normal specific gravity. It reduces alkaline copper sulphate solutions with the aid of heat, the mixture at first being of an inky-black color. Ammoniacal silver nitrate solutions are reduced in the cold. It does not reduce alkaline solutions of bismuth. The urine does not ferment with yeast, and it is optically inactive. The addition of a ferric chloride solution produces a transitory bluish-green color. Diapers and linen moistened with the urine turn a deep brown color on exposure to the air.

Bödeker called the substance which produced these interesting urinary changes alkapton (from "alkali" and "καπτειν," to absorb freely), owing to the property that urine containing it possessed of rapidly absorbing oxygen from the atmosphere in the presence of an alkali. He did not isolate the substance. It was not until 1891 that Baumann and Wolkow[2] demonstrated that the peculiar reactions of alkapton urine were due to the presence of homogentisic acid (Homogentisinsäure, $C_8H_8O_4$ or $C_6H_3(OH)_2.CH_2.COOH$, which is the dioxyphenylactic acid derived from hydrochinon. This acid has been found in practically all the cases reported subsequent to that date and in the urine of some of the cases previously reported, and is now conceded by all observers to be the cause of the urinary changes in alkaptonuria. The lead salt of the acid, lead homogentisate, is easily obtained by heating the urine nearly to the boiling point and adding five or six grams of neutral lead acetate to each 100 c.c. of urine and allowing it to cool for twenty-four hours. The lead salt crystallizes out in the form of brownish, stellar-shaped, acicular crystals, watery solutions of which give all the reactions of the original urine. The acid itself crystallizes with one molecule of water in large, transparent, prismatic crystals, which become non-transparent at the temperature of the room with the loss of the water of crystallization. They melt at 146.5° to 147° C. They are soluble in water, alcohol and ether, but nearly insoluble in chloroform.

The question now arises, what is the source of the homogentisic acid? It is this side of the consideration of alkaptonuria which brings it into bearing with the subject under discussion. Baumann, Wolkow and Embden, and others, believe that homogentisic acid is derived from tyrosin. Tryosin ($HO.C_6H_4.C_2H_3(NH_2).COOH$), or amido-oxyphenylacetic acid, is a normal product of trypsin digestion of proteids in the upper part of the intestinal tract, being formed by a hydrolytic cleavage process. The above-mentioned investigators have shown that when tyrosin is fed by mouth to an alkaptonuric individual nearly the whole of it is excreted as homogentisic acid, whereas the acid is not excreted in the urine when tyrosin is ingested by a healthy person. Beyond the fact that tyrosin and homogentisic acid

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are both aromatic acids, the two have nothing special in common, although of somewhat similar chemical constitution. The conversion of the former into the latter involves a shifting of the hydroxyl groups of the benzene ring; in other words, a simultaneous oxidation and reduction within the molecule. The view generally held regarding the etiology of alkaptonuria is that originally advanced by Baumann and Wolkow, who thought that the conversion of tyrosin into homogentisic acid is due to bacterial activity, and consequent putrefactive conditions in the upper intestinal tract. They even suggested that there might be a specific bacterium in such cases.

Some clinical facts regarding alkaptonuria may not be without interest. It is congenital in the vast majority if not all of the cases. In a good many of the cases a history is obtained that the individual's urine in infancy stained the napkins a dark-brown color. It persists throughout life. That it is rare is demonstrated by the fact that A. E. Garrod[3] found that only 40 cases had been reported up to 1902. Four of these were reported from the United States, one by myself in 1898. The condition predominates in males. Of the 40 cases, 29 were males and 11 females. The anomaly is likely to make its appearance in two or more brothers and sisters whose parents are normal and among whose forefathers there is no record of its having occurred. There is only one recorded instance of alkaptonuria having been transmitted from an affected parent to a descendant. This occurred in one of two sons of the patient with alkaptonuria I reported.[4]

The investigations of A. E. Garrod have thrown new light on the subject and given us a new conception of the anomaly. As a result of his research he finds that a very large percentage of the cases, concerning which he has been able to collect data, occurred in individuals who are the offspring of the marriage of first cousins, who do not themselves manifest the peculiarity. He points out that in this respect alkaptonuria resembles albinism and possibly also cystinuria. He has advanced the view, therefore, that alkaptonuria is a "sport" or alternative mode of metabolism, congenital in origin and persistent throughout life. In favor of this view is the fact that each individual excretes from day to day a very constant amount of homogentisic acid, the variations being within narrow limits and easily explained by fluctuations in the amount of proteid food taken from day to day. The average daily excretion of the acid has ranged between 2.6 grams in a child three and one-half years old and 5.9 grams in a young man of eighteen years. One would reason, therefore, that alkaptonurics suffer from some inherited metabolic defect, and it seems probable that this defect is closely related to the metabolism of tyrosin. This conception necessarily modifies the view previously held that alkaptonuria results from putrefactive changes in the upper intestinal tract. Being apparently a congenital anomaly, it does not seem possible that it is due to abnormal bacterial activity in the intestine. It does not, however, weaken the view that it is associated with some intestinal digestive disturbance. It would appear that there is some congenital defect in proteid digestion in the intestine whereby homogentisic acid is formed instead of tyrosin.

The general health of alkaptonurics appears to be in no way impaired. Until a very recent date, the only clinical significance that alkaptonuria was thought to possess, rested on the fact that a number of the cases, before recognition, have been mistaken for diabetes mellitus, owing to the power the urine possessed of reducing alkaline copper solutions. The fact that the urine does not ferment, is optically inactive and does not reduce bismuth, together with its peculiar color on standing and on the addition of an alkali, should have obviated such a mistake, however.

Recent observations indicate that a pathologic condition of great interest and rarity is associated with and probably due to the metabolic disturbances in alkaptonuria. This is the remarkable affection known as "ochronosis" or pigmentation of the cartilages, first described by Virchow, in 1866. In Virchow's case there was remarkable pigmentation of the cartilages of the body of a man, aged sixty-seven years, who died of the effects of an aneurism. He gave the name ochronosis to the condition owing to the ochre-like discoloration of the cartilaginous tissues. Osler,[5] one year ago, reported two cases of ochronosis in alkaptonuric brothers, both of which cases had been previously reported in the literature as alkaptonurics, one by Marshall and the other by myself, and constituting two of the four instances of alkaptonuria observed in this country. Previous to Osler's two cases, only seven instances of ochronosis had been recorded. Two of them were described as having "melanuria," but Albrecht,[6] who published the seventh case in 1902, deserves the credit of first suggesting an association between the disease and alkaptonuria. The urine of his patient was dark colored and reduced sulphate of copper solutions, but homogentisic acid was not absolutely demonstrated.

Osler's first case was a man fifty-seven years of age and was the alkaptonuric I reported. The sclerotic coats of the eyes showed areas of pigmentation on the exposed portions. The cartilages of the ears, particularly the concha and helix, presented a remarkable blue-black discoloration. A noteworthy feature not previously recorded was that a butterfly-shaped area of the skin over the nose and cheeks was also remarkably pigmented, the pigmentation very closely resembling powder marks. The discoloration of the sclerotics and of the ears was present, but less marked, eight years ago. There was a very marked bowing of the spine with the convexity backward and he walked with a marked stoop of the shoulders. The patient has been under my own observation for some time and he occasionally has some stiffness of the knee-joints in

which there is marked crepitation on passive movement. The pigmentation of the cartileges of the metacarpo-phalangeal joints has recently been evident through the skin over the knuckles. The other brother, forty-nine years of age, presented a similar but less striking pigmentation of the sclerotics and cartilages of the ears. He had noticed the pigmentation for several years. The patient died of pneumonia but no autopsy could be obtained. There is little doubt but that the deep-seated cartilages of both these cases would have manifested the same changes.

The probabilities, therefore, are that ochronosis is another manifestation of the metabolic disturbances in alkaptonuria, which previously had been recognized only by the urinary changes. There is no definite evidence that the ochronotic condition in any way affects the health or the body functions. It is worthy of note, however, that in one of Osler's cases the joint affection objectively simulated conditions found in arthritis deformans. Some of the cases of ochronosis have not been associated with alkaptonuria and Garrod is inclined to the view that there may be two distinct groups of cases. The interesting fact is that Ogden's alkaptonuria case, another of the four American cases, has recently been found to have the ochronotic pigmentation. Whereas all alkaptonurics do not have ochronosis, it will probably be shown eventually on careful examination that most cases of ochronosis exhibit alkaptonuric changes in the urine.

II. Cystinuria.—Another metabolic affection which has generally been regarded as being dependent on intestinal disturbances is cystinuria, characterized usually by the spontaneous deposition of hexagonal crystals of cystin in the urine. The condition is rare, as shown by the fact that up to November, 1904, Simon and Campbell[7] found that only 131 cases had been reported in the literature. Cystin ($C_6H_{12}N_2S_2O_4$) is the disulphide of di-amido-ethidenelactic acid. According to Baumann and Goldmann a substance similar to cystin occurs in very small amounts in normal urine. This substance occurs in large quantities in the urine of dogs after poisoning with phosphorus. Although it has not been definitely demonstrated that cystin is a normal constituent of the urine of human individuals, yet there is good reason to believe that cystin is an intermediate product of normal metabolism and that it is ordinarily broken up with oxidation of the greater part of its sulphur to sulphuric acid. According to one view cystin is apparently preceded in the course of normal metabolism by cystein. This cystein is regarded as a lactic acid, $CH_3CH.(OH)COOH$, in which one H is replaced by NH_2 and the OH by SH. Cystein is therefore to be regarded as an amidothiolactic acid. V. Bergmann, Simon and Campbell, as a result of their researches, are led to conclude that a certain amount of the cystin liberated during normal metabolism is eliminated in the bile in combination with cholalic acid as taurocholic acid, while the remainder appears in the urine in completely oxidized form.

The clinical significance of cystinuria is not great, because it is commonly unassociated with definite symptoms and may be well developed in persons apparently in good health. Occasionally the individuals have disordered digestions, at times associated with anemia. Cystinuria may be of surgical importance owing to the fact that renal calculi composed of cystin may occur. The crystals of cystin when shaken up with urine present a curious sparkling appearance. The urine on decomposing emits a very offensive odor of sulphureted hydrogen, owing to the large amount of sulphur contained in the cystin molecule. Cystinuria is much commoner in males than in females.

What occasions the development of cystinuria? The view usually held is that the condition is closely related to putrefactive changes in the intestinal tract. Probably the most striking feature at present known to us in connection with the pathology of cystinuria is the almost regular association of the condition with the presence in the excreta of putrefactive basic bodies or ptomains belonging to the class of diamines. The diamines are bodies in which two amine (NH_2) groups are united to a diatomic alcohol radical of the olefine series of hydrocarbons. The diamines of greatest interest in connection with cystinuria are *putrescin*, which is tetra-methylen-diamin and *cadaverin*, which is penta-methylen-diamin. These were found in the urine in cystinuria by Baumann and Udránszky as well as in the intestinal contents, while under normal conditions they are not present. Hammarsten thinks that a connection probably exists between the formation of diamines in the intestine, by the peculiar putrefaction in cystinuria, and cystinuria itself. Herter asserts that it is, on the whole, not unlikely that both the diamines formed by putrefaction in the intestine and the cystin formed in the course of metabolism are the expression of an obscure form of putrefaction in the intestine. It must be remembered, however, that a number of competent observers, among them Cammidge and Garrod, have not been able to demonstrate the presence of these diamines in the urine and feces of the cystinuric individuals they have examined.

The recent view of Simon and Campbell must be mentioned here. It will be recalled that in normal metabolism they think that the cystin of the body is eliminated in the bile in combination with cholalic acid as taurocholic acid, while the remainder appears in the urine in completely oxidized form. They found that while the administration of cholalic acid in the non-cystinuric individual leads to a diminished elimination of sulphur in the urine, this does not occur in the cystinuric subject. This suggests to them that in the cystinuric individual taurocholic acid is possibly not formed at all, in which

case they are forced to assume either that all the sulphur liberated in the body is eliminated in the urine, or that a portion is excreted in the bile in a form different from taurocholic acid.

It is of interest to point out here that A. E. Garrod advances the view that cystinuria, like alkaptonuria and albinism may, on more thorough investigation, turn out to be an example of a "chemical sport." In this connection he cites a most interesting family described by Pfeiffer, which he thinks supports this view. Both parents were normal, but all their four children, two daughters and two sons, were cystinuric. The elder daughter had two children, neither of whom was cystinuric.

III. Diabetes and Gout.—In a discussion of this kind it seems advisable to say something of these two most characteristic examples of metabolic diseases, if only to point out how little dependent they are upon disorders in intestinal function. The writer fully appreciates the fact that many gastro-intestinal disorders occur as symptoms of these two diseases, but time will not permit their being considered here.

According to the latest conception of the disease, diabetes results from disturbances in sugar metabolism owing to deficiency in the production of glycolytic bodies formed in the pancreas and muscles (Cohnheim), and which are necessary for the final combustion of the sugars in the latter tissues. It is doubtful whether intestinal disorders in any way, therefore, play any part in the etiology of diabetes mellitus. The "alimentary" glycosurias are not dependent upon defective intestinal function but rather to the sudden ingestion of some form of sugar in such a large quantity that the liver has not time to convert all the glucose into glycogen, thus storing it up for future use. Consequently the excess passes over into the general circulation producing a hyperglycemia and a resultant glycosuria.

It is possible, according to recent researches, that there may be intestinal influences in the production of one of the auto-intoxications occurring in diabetes, namely acetonemia. The work of Geelmuyden, Schwarz, Waldvogel and Magnus-Levy has shown that acetone is formed largely, if not entirely, from fat and not from proteids as was formerly believed. Schwarz found that in severe diabetics the administration of butyric acid caused a marked increase in the acetone production. Blumenthal and Neuberg demonstrated the interesting fact that only the butyric acid given by mouth, and not that given subcutaneously, caused an increase in the acetone output. They think that it is necessary for the butyric acid to first undergo some change in the intestinal canal and that this may be due to bacterial influences.

So far as we are aware at the present time intestinal disorders play no special part in the etiology of gout. We know so little concerning the causes for the marked disturbances in the nitrogen metabolism in gout that we are not warranted in making a dogmatic statement that disorders in the intestinal functions play no part in the etiology of this disease.

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THE IMMEDIATE EFFECT OF BILIARY RETENTION ON THE SECRETORY FUNCTION OF THE STOMACH.*

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THE fact that one digestive secretion exerts a marked influence upon another secretion has been known for a long time. Thus George Sticker[1] was the first to show that the saliva exerted a marked influence in the secretion of gastric juice and that this was of such a nature that an absence of salivary secretion not only resulted in an absence of amylolysis but that the proteolysis in the stomach was much retarded thereby. This discovery of Sticker has been confirmed by Biernacki[2] and by myself.[3]

More recently Pawlow,[4] in a beautiful series of experiments on dogs, has shown that the gastric secretion exerts a similar influence on the pancreatic secretion in so far that the former excites a flow of the latter secretion. Observations on the effect of the bile on the gastric secretion have been made by a number of observers. Hayem[5] was the first to show that usually in cases of hypertrophic cirrhosis of the liver a hyperchlorhydria and hypersecretion is found; he did not point out, however, that this condition was in any way connected with the jaundice. Leva[6] too found a similar condition in a few cases of hypertrophic cirrhosis of the liver. N. Kirikow[7] verified Hayem's results. In regard to the gastric chemistry in biliary retention various authors have obtained different results. V. Noorden,[8] Johnson and Behm,[9] Schiff,[10] Kirikow,[11] Malkow,[12] found hyperacidity, whereas Leva,[13] Schneyder;[14] Von Jaksch[15] found subacidity: others found no change whatever (Riegel,[16] Swirelin[17]). The number of observations of these investigators was very small. In addition to this, inasmuch as these writers made as a rule one test of the gastric contents and rarely repeated the examination, they could not obtain a thorough account of the effect of the biliary retention on the secretory function of the stomach. It is a well-known fact that all forms of intoxication of the system can markedly influence the gastric secretion and change its character (Ank-

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indinov,[18] Hanot et Boix[19]). A cholemic condition due to biliary retention is much like the uremic condition due to ligation of the ureter in which marked disturbances of gastric secretion are known to take place (Ankindinov [18]).

The first really systematic examination in this regard was made by S. Simnitzky.[20] He investigated especially cases of catarrhal jaundice, because in this disease the jaundice gradually increases and then gradually again diminishes. Beginning the examinations early and continuing them as the jaundice intensified and as it again diminished, the direct effect of the jaundice upon the gastric secretion could be observed. He investigated the gastric contents of the 12 patients; consisting of 7 cases of catarrhal jaundice, 1 case of Weil's disease, 3 cases of hypertrophic cirrhosis of liver, 1 case of jaundice due to compression of the common duct by a pancreatic cancer. In all 81 examinations were made. He utilized an Ewald breakfast of 35 grams of bread and 250 c.c. of tea.

He found that in those cases in which there was at first a complete biliary retention which gradually began to clear up, the total acidity as well as the percentage of free hydrochloric acid gradually diminished, and that with the retention of the bile the gastric acidity increased in proportion to the degree of biliary retention; the increase in acidity being due mainly to free HCl.

In order to investigate this condition more fully Simnitzky made a certain number of observations on dogs. He performed a gastrotomy according to Pawlow's method and studied the gastric secretion and then ligated the common bile duct and further investigated this secretion. He found that after ligation the acidity of the gastric juice rose markedly, about 50 per cent.

My own observations include eleven cases of which eight were cases of catarrhal jaundice, one of hypertrophic cirrhosis of the liver and two of cholelithiasis; in all 115 examinations were made. In all of our observations we were careful not to include any cases in our list which were accompanied with fever or in which there was any question of an associated gastric catarrh. The gastric contents were examined for the total acidity by titration with one-tenth normal sodium hydrate solution, using phenolphthalein as an indicator; the percentage of free hydrochloric acid was determined in some cases by means of Mintz's method, in others by Töpfer's method. The cases of catarrhal jaundice were mild forms, running their course in five or six weeks. As Simnitzky points out, the variation in the state of the gastric secretion in cases of jaundice can be best observed in catarrhal icterus, inasmuch as the jaundice in this disease develops gradually, reaches a maxium of intensity and again gradually subsides, affording an excellent opportunity to observe the state of the gastric secretion during the varying intensity of the jaundice. In the eight cases of catarrhal jaundice studied as shown in the accompanying tables (See Cases 1, 2, 3, 4, 5, 6, 7, 8), similar results were observed.

The jaundice being slight at the beginning of the attack the increase in the total acidity as well as the free hydrochloric acid is found slightly above normal; gradually as the jaundice increases these factors increase proportionately and again decrease as the jaundice diminishes. So constant is this variation that we can with almost certainty predict from the condition of the acidity of the gastric secretion when the jaundice is about to diminish or disappear.

Case IX of hypertrophic cirrhosis of the liver is very interesting as showing the effect of biliary retention upon the gastric secretion in this disease. The patient, a man of forty-one years of age, had been ill of this disease for four months when he presented himself for treatment. His symptoms were marked, there was the presence of pain in the region of the liver, enlargement of the liver and spleen and an absence of ascites and the jaundice which was at times moderate and at times marked. With a moderate degree of jaundice the total acidity of his gastric contents would be as low as 70 and the percentage of free hydrochloric acid as low as .21 per cent.; while, when the jaundice was marked the total acidity would run as high as 100 and the percentage of free hydrochloric acid as high as .28 per cent.

Of even greater interest in this regard are the two cases of cholelithiasis; both of these cases were common duct cases. They were never accompanied with fever, and jaundice was always present during the attacks which would disappear again in from eight to nineteen days. In both of these cases coincident with the appearance of the jaundice there was an increase in the total acidity as high as 110 and of the percentage of free hydrochloric acid as high as .26 per cent., whereas when the attack of colic had subsided the total acidity would fall as low as 40 and the percentage of free hydrochloric acid as low as .11 per cent.

From our own observations as well as those of Simnitzky we feel justified in concluding that in conditions of biliary retention there is a marked tendency to an increase in the secretion of the hydrochloric acid of the gastric secretion. It is probable, as Simnitzky points out, that this alteration is due to a disease or asthenic state of the secretory cells of the stomach due to poisoning with biliary products.

Case I.—M. F., aged forty-five years.—CATARRHAL JAUNDICE.

No.	Date.	Total acidity.	Per cent. of free acid.	Degree of Jaundice.
1	Jan. 8	70	0.2322	Slight
2	Jan. 12	94	0.3114	Marked
3	Jan. 20	88	0.2841	Marked
4	Jan. 22	94	0.2917	Marked
5	Feb. 2	84	0.2874	Marked
6	Feb. 8	86	0.2716	Marked
7	Feb. 21	72	0.2523	Slight
8	Feb. 28	68	0.2403	Slight
9	March 22	60	0.2013	None
10	March 28	54	0.1421	None
11	April 4	48	0.1222	None
12	April 10	52	0.1316	None

Case II.—A. T., female, aged thirty-four years.—CATARRHAL JAUNDICE.

No.	Date.	Total acidity.	Per cent. of free acid.	Degree of Jaundice.
1	Dec. 5	68	0.1913	Slight
2	Dec. 15	104	0.3304	Marked
3	Dec. 23	106	0.3119	Marked
4	Jan. 14	84	0.2751	Marked
5	Jan. 25	72	0.2416	Slight
6	Feb. 10	40	0.1241	None
7	Feb. 17	44	0.1214	None
8	Feb. 28	46	0.1354	None

Case III.—F. G., female, aged twenty-two years.—CATARRHAL JAUNDICE.

No.	Date.	Total acidity.	Per cent. of free acid.	Degree of Jaundice.
1	June 4	70	0.1781	Slight
2	June 9	84	0.2659	Marked
3	July 20	70	0.2384	Marked
4	Aug. 10	42	0.1254	None
5	Aug. 18	44	0.1189	None
6	Aug. 28	40	0.1176	None

Case IV.—Male, aged thirty-one years.—CATARRHAL JAUNDICE.

No.	Date.	Total acidity.	Per cent. of free acid.	Degree of Jaundice.
1	April 4	74	0.2214	Slight
2	April 10	82	0.2703	Marked
3	April 18	88	0.2792	Marked
4	May 9	80	0.2699	Marked
5	May 19	74	0.2419	Marked
6	June 6	60	0.2120	Slight
7	June 20	44	0.1201	None
8	June 25	40	0.1324	None
9	June 28	46	0.1192	None
10	July 1	50	0.1241	None

Case V.—Female, aged twenty-four years.—CATARRHAL JAUNDICE.

No.	Date.	Total acidity.	Per cent. of free acid.	Degree of Jaundice.
1	Feb. 4	68	0.1817	Slight
2	Feb. 8	00	0.2754	Marked
3	Feb. 12	100	0.2951	Marked
4	Feb. 20	88	0.2634	Marked
5	Feb. 25	84	0.2712	Marked
6	March 12	78	0.2316	Slight
7	March 20	70	0.2219	Slight
8	April 9	50	0.1512	None
9	April 12	48	0.1229	None
10	April 18	45	0.1182	None
11	April 22	48	0.1174	None
12	April 28	50	0.1093	None

Case VI.—Male, aged forty-one years.—CATARRHAL JAUNDICE.

No.	Date.	Total acidity.	Per cent. of free acid.	Degree of Jaundice.
1	Oct. 3	74	0.1612	Slight
2	Oct. 15	86	0.2609	Marked
3	Oct. 25	80	0.2671	Marked
4	Nov. 18	88	0.2789	Marked
5	Dec. 1	70	0.2219	Slight
6	Dec. 20	54	0.1348	None
7	Dec. 28	42	0.1218	None
8	Dec. 30	40	0.1114	None

Case VII.—Female, aged forty-eight years.—CATARRHAL JAUNDICS.

No.	Date.	Total acidity.	Per cent. of free acid.	Degree of Jaundice.
1	June 10	68	0.1719	Slight
2	June 18	92	0.2846	Marked
3	June 29	110	0.2982	Marked
4	July 5	90	0.2879	Marked
5	July 12	88	0.2756	Marked
6	July 20	92	0.2874	Marked
7	July 28	84	0.2769	Marked
8	Aug. 5	88	0.2642	Marked
9	Aug. 9	86	0.2718	Marked
10	Aug. 12	78	0.2469	Marked
11	Aug. 20	70	0.2191	Slight
12	Aug. 27	60	0.1918	None
13	Sept. 3	54	0.1216	None
14	Sept. 9	52	0.1189	None
15	Sept. 13	56	0.1072	None

Case VIII.—Male, aged forty years.—CATARRHAL JAUNDICE.

No.	Date.	Total acidity.	Per cent. of free acid.	Degree of Jaundice.
1	April 4	70	0.2191	Marked
2	April 12	84	0.2684	Marked
3	April 18	92	0.2784	Marked
4	May 5	08	0.2796	Marked
5	May 9	86	0.2687	Marked
6	May 15	84	0.2695	Marked
7	June 4	78	0.2421	Marked
8	June 30	58	0.1189	None
9	Aug. 5	52	0.1213	None
10	Aug. 8	44	0.1184	None

Case IX.—Male, aged forty-one years.—HYPERTROPHIC CIRRHOSIS OF THE LIVER.

No.	Date.	Total acidity.	Per cent. of free acid.	Degree of Jaundice.
1	June 4	70	0.2219	Moderate
2	July 9	78	0.2318	Moderate
3	Aug. 5	94	0.2659	Marked
4	Aug 20	100	0.2864	Marked
5	Sept. 8	72	0.2214	Moderate
6	Sept. 15	70	0.2187	Moderate
7	Sept. 23	74	0.2089	Moderate
8	Oct. 20	80	0.2501	Marked
9	Nov. 10	84	0.2582	Marked
10	Dec. 12	82	0.2517	Marked

Case X.—Female, aged thirty-five years.—CHOLELITHIASIS.

No.	Date.	Total acidity.	Per cent. of free acid.	Degree of Jaundice.
1	Feb. 4	45	0.1182	None
2	Feb. 20	40	0.1143	None
3	March 25	80	0.2483	Marked
4	March 28	84	0.2591	Marked
5	April 2	92	0.2683	Marked
6	June 6	50	0.1382	None
7	June 12	54	0.1243	None
8	July 2	45	0.1134	None
9	Sept. 8	90	0.2684	Marked
10	Sept. 11	84	0.2517	Marked
11	Sept. 18	76	0.2481	Slight
12	Nov. 7	42	0.1243	None
13	Nov. 14	44	0.1189	None
14	Nov. 22	46	0.1146	None

Case XI.—Male, aged forty-two years.—CHOLELITHIASIS.

No.	Date.	Total acidity.	Per cent. of free acid.	Degree of Jaundice.
1	June 6	88	0.2482	Marked
2	June 12	110	0.2694	Marked
3	June 18	84	0.2514	Marked
4	Aug. 10	42	0.1345	None
5	Aug. 14	48	0.1394	None
6	Sept. 28	92	0.2487	Marked
7	Oct. 4	96	0.2416	Marked
8	Oct. 16	72	0.2386	Slight
9	Dec. 6	46	0.1387	None
10	Dec. 20	40	0.1313	None

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SULPHONATED GUAIACOL COMPOUNDS.*

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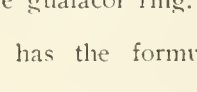
OF the numberless remedies which have been employed in the treatment of pulmonary tuberculosis, creosote has been for many years one of the greatest importance. It is held by most clinicians that this drug not only checks expectoration and renders it less purulent, but brings about an improvement in the appetite and digestion as well, and in fact exercises a markedly beneficial influence on the whole general condition. Since guaiacol forms from 60 to 90 per cent. of creosote, it is but natural that it be employed as a substitute for creosote. In the past few years it has been used in this way very extensively, and apparently the same beneficial effects are induced by it as the impure mother-substance, creosote. Whether the good results obtained are due to its excretion by the lungs and antiseptic action there or whether they are to be explained by its antiseptic and stimulant action on the alimentary tract, is a question which need not here be discussed.[1] It is known that guaiacol is a somewhat weak antiseptic, although it seems to have a rather pronounced germicidal effect on the tubercle bacillus[2]; that it is excreted by the lungs in small part but chiefly by the kidneys, about 50 per cent. of the ingested guaiacol being found in the urine as an ethereal sulphate, a smaller amount as a glycuronate and some as a more highly oxidized phenol.[3] In the changes it undergoes in the body it resembles carbolic acid, from which, indeed, it differs but slightly chemically. Like the corresponding compound of carbolic acid, guaiacol ethyl sulphate is non-toxic. As a therapeutic agent guaiacol has a number of objectionable features. The form in which it exists—a fluid almost insoluble in water, its taste and odor and its irritant properties, often producing gastric disturbance and making its use by subcutaneous injection a rather painful process, are disadvantages which have stimulated chemists to attempt to make synthetic derivatives, which, possessing the beneficial guaiacol action, are without its disagreeable features. In the past few years a number of guaiacol derivatives have been introduced and extensively advertised by manufacturing chemists. Needless to say flattering clinical reports, each as a rule consisting of observations on a very limited number of cases, have followed. Guaiacol carbonate may be taken as an example. This substance has the formula $CO(OC_6H_4OCH_3)_2$. It is a crystalline powder, insoluble in water, and practically devoid of the irritating properties of guaiacol. Eschle[4] has shown that the compound is broken up in the intestine and from 22 to 66 per cent. guaiacol set free. Still more recently certain compounds have been made in which guaiacol exists in the form of a sulphonate, the sulphur atom being linked directly to a carbon atom of the guaiacol ring. Thiocol is one of these, and has the formula



This substance is crystalline, free from irritant properties, and quite soluble in water. It has been warmly recommended by a number of practioners. A compound of this chemical nature is, according to the pharmacological standpoint, nearly certain to be worthless, since it is common experience that the introduction of the sulphon group into an aromatic group, renders a previously active substance inert and non-toxic, and that the substance is absorbed, circulates in the body, and is excreted without being split up to any appreciable degree.[5] In order that such a combination possess the typical guaiacol action it must either be antiseptic and irritant itself or else be broken up in the intestine or in the tissues after absorption in such a way that guaiacol is set free. If the compound is not antiseptic and is non-toxic, and passes through the system unchanged it can not of course induce the guaiacol effects and the sooner this is recognized by the profession the fewer will be the disappointments bound to occur after its employment.

* From the Pharmacological Laboratory, University and Bellevue Hospital Medical College.

1 For a discussion of this see Hensel, Inaug. Dissert. Königsberg, 1902.

2 Kuprianow, Centralbl. f. Bakter., 1894, xv.

3 Eschle, Schmidt's Jahrbücher, 1896, ccl.

4 Eschle, loc. cit.

5 Fränkel. Die Arzneimittel Synthese, p. 73.

The substance we have examined, guaiamol,* is guaiacol ammonium sulphate, $C_6H_3\begin{cases}OH\\OCH_3\\SO_3NH_4\end{cases}$ It differs from thiocol only in having a NH_4 group in place of the K atom, a difference which would in nowise affect the action of the body. It exists in crystalline form, is freely soluble in water and is devoid of irritant properties.

We have determined first whether the substance is antiseptic and whether it is split up by the pancreatic ferments, and secondly, whether it is broken up in the body after absorption, with the liberation of guaiacol. The second point would be shown by changes in the sulphur compounds in the urine.

As we were completing our experiments a paper by Knapp and Suter[6] appeared in which experiments on thiocol were described. The experiments were carried out in a manner very similar to ours, and the conclusions reached were that thiocol is not an antiseptic, is not broken up in the body, and hence is of no value as a substitute for guaiacol.

In testing the antiseptic value of guaiamol, finely ground pancreas was placed in a flask, covered with a 10 per cent. guaiacol solution, and the mixture placed in an incubator at 37° C. A control experiment was carried on at the same time, a one per cent. solution of guaiacol being used in place of the 10 per cent. guaiamol solution. The two flasks were kept in the incubator for two days. At the end of that time the contents of the guaiacol or control flask were perfectly sweet, with no trace of decomposition. The contents of the guaiamol flask, on the other hand, had undergone decided putrefaction. Tests for free guaiacol in this flask were negative. Guaiamol is not an antiseptic then, nor is it split up by the pancreatic ferments.

In determining whether or not guaiamol is broken up in the body after absorption, the experiment was carried out on a medium-sized bitch in the following manner. The experiment lasted ten days and was divided into three periods: One a control period of four days, followed by four days of guaiamol treatment, during which the animal received daily 3 grams guaiamol subtaneously and a final period of two days after guaiamol medication had been stopped. The dog was placed on a fixed diet throughout the experiment, receiving each day 15 grams dry casein. 100 grams crackers, and 30 grams lard. Water was given *ad libitum*. The daily period ran from 9 A.M to 9 A.M., at which time the animal was catheterized and the bladder carefully washed. The urine collected during the twenty-four hours was mixed with the bladder washings and the volume made up to 1,000 c.c. In each day's urine were estimated the total sulphur, inorganic sulphates and ethereal sulphates, these being calculated in terms of SO_3. The method of determination is very briefly as follows: For the total sulphur, 75 c.c. of the diluted urine were evaporated to dryness in a silver crucible over the water bath, and the residue fused with NaOH and KNO_3. SO_3 determinations were made in the ordinary way by precipitating with $BaCl_2$ and weighing the $BaSO_4$. For the inorganic sulphates 100 c.c. of the diluted urine were precipitated with $BaCl_2$ and the $BaSO_4$ weighed. For the ethereal sulphates 100 c.c. of diluted urine, after removal of the inorganic sulphates, were boiled with HCl and then treated with $BaCl_2$. The determinations were all made in duplicate.

The difference between the total sulphur and the sum of the inorganic and etheral sulphates, all expressed in terms of SO_3, indicates the "neutral" sulphur, together with oxidized sulphur of a type which does not allow of being split off as H_2SO_4 on boiling with hydrochloric acid. In the ethereal sulphates the sulphur is attached to a carbon atom through an oxygen atom, whereas in guaiamol the sulphur atom is linked directly to a carbon. Hydrochloric acid splits off the sulphur in the former condition, but not when it exists in the latter form. Unchanged guaiamol will therefore appear in the neutral sulphur fraction of the urine. If it is split in the organism, with a liberation of guaiacol, the ethereal sulphate fraction will undergo an increase, corresponding to about 50 per cent. of the amount of liberated guaiacol.

The protocol of the experiment is as follows:

Day.	Volume of urine in c.c.	Total Sulphur.	Inorganic Sulphates.	Ethereal Sulphates.	Neutral Sulphur.		
1	235	0.600	0.324	0.021	0.255		
2	195	0.513	0.290	0.022	0.201		
3	310	0.620	0.320	0.016	0.284		
4	240	0.666	0.400	0.023	0.243	3 grams	guaiamol.
5	230	1.800	0.422	0.030	1.348	"	"
6	300	1.705	0.401	0.032	1.272	"	"
7	210	1.589	0.404	0.039	1.146	"	"
8	215	1.548	0.432	0.038	1.078		
9	260	0.711	0.391	0.035	0.285		
10	240	0.537	0.332	0.026	0.179		

AVERAGES.

Fore period	0.600	0.333	0.021	0.241
Guaiamol period.....	1.660	0.415	0.035	1.211
After period	0.624	0.361	0.030	0.232

As the figures indicate, the neutral sulphur fraction was largely increased on the days during which guaiamol was administered. This increase, calculated in terms of SO_3, and taking daily averages, was equivalent to 0.970 grams SO_3. Since the 3 grams guaiamol taken contained 1.085 grams SO_3 the conclusion must be reached that 89.4 per cent. of the substance was excreted unchanged. The slight rise in the daily amount of ethereal sulphate indicates that a certain quantity of guaiamol was decom-

* Guaiamol, which we have taken as a type of sulphonated guaiacol compound, was kindly furnished us by Schieffelin & Co. In justice to this firm it may be stated that this drug has never been placed on the market.

6 Knapp and Suter, Arch. f. exp. Path. und Pharmakol., Bd. 50, 1903.

posed in the body, since guaiacol, as above stated, is excreted in the form of a combined sulphate. The daily average increase in the ethereal sulphates amounts to only 0.014 grams SO_3, which is equivalent to 0.0387 grams guaiacol or only 1.29 per cent. of the quantity ingested.

There is to be noted in the table a marked decrease in the daily excretion of neutral sulphur after the first guaianiol day, a decrease which runs parallel with the total sulphur output. Since the ethereal sulphates do not show a corresponding increase, the explanation cannot be found in the assumption that the organism is gradually taking on the power to decompose guaiamol. The decrease must be ascribed to a lessened output of those compounds usually classed as neutral sulphur, namely ethyl sulphur, oxyproteic acids, cystin, taurin, etc., but why this occurs we are at a loss to say.

Our results are, therefore, in complete accord with those of Knapp and Suter as concerns thiocol. By the most liberal estimate 10 per cent., but most probably only one to two per cent. of the guaiamol ingested undergoes decomposition in the organism after absorption.

The conclusions reached are as follows: (1) Guaiamol is not an antiseptic; (2) it is not broken up by the pancreatic juice; (3) after absorption it is decomposed to such a slight extent that no action due to guaiacol liberated could occur.

These results serve to emphasize the fact that all attempts to increase the solubility of drugs by sulphonation are valueless from a therapeutic standpoint.

ADDRESSES.

THE MEN WE LOST.[1]

BY S. J. MELTZER, M.D.,
OF NEW YORK.

THE remarks, which custom requires of me to make at this occasion, will be confined, as at last year's meeting, to matters pertaining to the affairs of the Association. Last year your president advocated a widening of the scope of the Association, and recommended the appointment of a committee which should formulate appropriate changes in the constitution. The recommendation being approved by a vote of the members, the president named seven members to serve on that committee which was termed Committee on Reorganization. After due deliberation and consultation with the members of the council, the committee recommends changes in the constitution which in the first place would enable the association to include in its membership scientific investigators as well as surgeons who do special work in gastro-enterology; and in the second place would make an irreproachable moral standing an indispensable requisite for acquiring and retaining membership in this Association. The council recommends the adoption of these changes. The report of the committee will be read to you at the executive meeting. According to the constitution, these changes could not be voted upon until next year. However, a part of the desired aims could be already realized the coming year if the president should be empowered to continue the present Committee on Reorganization for the purpose of studying the men who appear to be very desirable as members of our Association and to invite them to join our ranks. The present occupant of the chair would be very gratified if he could thus contribute to the elevation of the scope and standard of this Association.

In the address of last year I was happy to be able to point out that we never met yet with the flag at half mast. We still have reason to be thankful to the fates for the integrity of the ranks of our active members. I have, however, to record with profound regret that in the course of the past year one of our foreign members, a master mind in our science, was taken from us. I refer to Franz Riegel, who, through some inexplicable error, has been classed only among the corresponding members of this Association. Furthermore, in looking over the list of our foreign members, which originally comprised seven celebrated names, I found that nearly one-half of them have already been taken from us by death. Besides Riegel, fate has taken from us Adolph Kussmaul and Samuel Fenwick. There is no record that at the meeting of 1903 due notice was taken of these bereavements which occurred in 1902. It was an oversight which it is not now too late to correct. While it is within the scope of my duties to speak to-day of the life of Franz Riegel, I am sure the Association will grant me the privilege to speak also of the lives and works of the other great men who honored us during their life by accepting the membership of our Association.

Adolf Kussmaul was the first of our losses. He died May 28, 1902, at the age of eighty, of heart failure, half an hour after he experienced some stenocardiac symptoms for the first time. He was born in Graben, near Carlsruhe, Germany, as the son of a country practitioner from whom he inherited the faculties of a naturalist and the love for medicine. After completing his medical studies in Heidelberg and taking some post-graduate studies in Prague and Vienna, he served for a short time as military surgeon in the Baden army and then settled in Kadern, a small town in the picturesque region of the Black Forest, where he carried on a successful practice for four years until he became incapacitated for many months by an attack of paraplegia of obscure origin. After recovering from this disease he decided to begin life anew and to prepare himself for an academic career. With his meager savings as a base he pursued the study of the scientific branches of medicine in Würzburg. In 1856 he was admitted to the University of

[1] President's Address, delivered at the opening of the eighth annual meeting of the American Gastro-Enterological Association, held at the Academy of Medicine, New York, April 24 and 25, 1905.

Heidelberg as Privat-Docent and in the following year he was appointed professor extraordinarius. In 1859 he was called to the regular chair of medicine in Erlangen; in 1864 he went to the University of Freiburg and in 1876 he was called to the University of Strassburg. In 1888 he retired from his academic positions and spent the remainder of his life in his beloved Heidelberg.

Kussmaul was undoubtedly one of the greatest clinicans, one of the most accomplished physicians of his age. He was a harmonious personality; in him the great faculties of the naturalist and the physician were coupled with kindness and simplicity of heart, and in him were united the common sense of the practical man with a fine poetical spirit flavored with a delicious humor. He was admired and loved. His scientific contributions are too numerous to be mentioned at length here. They extend into nearly every department of medicine. Many of his contributions exerted a deep influence upon the science and practice of medicine, and some became common property to such an extent that their originator is already forgotten. Some of his writings are real classics. I mention only the essay on the Psychology of the Newborn or the important essay on the Disorders of Speech. He was a pioneer in many domains of medicine. It is hardly known that he was the first one to describe osteomyelitis, to attempt the construction of an ophthalmoscope, or to develop gastro- and esophagoscopy, to establish the relation between anemia and convulsions; the first one to point out the importance of coryza for the suckling baby, to describe bulbar paralysis, to describe and analyze diabetic coma, to introduce the method of thoracocentesis, the first one to diagnose *intra vitam* embolism of the mesenteric artery and to describe the diagnostic significance of the pulsus paradoxus. There are a good many more important contributions to general medicine which we cannot mention here. But we have yet to speak of his great service to gastro-enterology. He was the first to employ a stomach tube, and by this step he undoubtedly gave the first and most important impulse to the modern development of our knowledge of the diseases of the stomach. His articles on the treatment of the dilatation of the stomach and on the peristaltic unrest of the stomach are classical contributions to our subject. Many important additions to our knowledge have been published by his assistants and pupils under his direct influence and active cooperation. Of those which interest us here I shall mention only the following few: On the presence and absence of hydrochloric acid in gastric juice by Van den Velden; the classical prize essay by Poensgen on the motor activities of the human stomach; on the treatment of the ileus by washing the stomach, by Arnold Cahn; on the acids of the healthy and diseased stomach by Cahn and von Mehring. Kussmaul's last contributions to gastro-enterology were made from his retreat in Heidelberg while already over seventy; they are practical and of permanent value, namely, the treatment of gastric ulcer by large doses of bismuth, and the treatment of chronic constipation by enemata with large quantities of oil.

When already over seventy-five years he wrote his celebrated autobiography, Juvenile Recollections of an Old Practitioner, an inspiring, fascinating little book. Old age had not curtailed the usefulness of that great and lovable man. I shall finish with the statement that to my knowledge Kussmaul never attempted to write a textbook.

It might not be unprofitable to speak of Kussmaul as a practitioner and clinician. All his assistants and pupils could not praise enough his kindness and devotion to his patients. While he was an enthusiastic investigator, he never permitted the study of a case in a manner which could bring harm or discomfort to the patient. The patient was always first and science second, a high principle which should be burned into the minds of our generation of overproductive specialists. Kussmaul told his students he wished them to pass through a serious disease, it would help them to become good physicians, they would then understand what care, kindness and tenderness meant to a suffering patient. Kussmaul himself learned this lesson during his own sickness and did not forget it for half a century. He insisted that his students should learn the particulars of nursing, the making of a bed, the handling of a patient, the preparation of his food, etc. Above all he laid great stress upon the moral and mental influence of the physician upon his patient. He believed in making the patient at least hopeful and cheerful even if he could not be made well. Kussmaul was a great and good physician even if he did not believe in the more godly though less humane doctrine of Truth in Medicine. May the life of this great man be an inspiring example to the younger generation in this country.

Samuel Fenwick died December 11, 1902, at the age of eighty-one years, of heart failure, due to atheroma of the aortic valves. He was born in 1821 in Northumberland, England, of a family which played a conspicuous part in that country for seven centuries. He was compelled to study medicine on account of pecuniary losses which his father had sustained. At the age of fourteen he was apprenticed to the Royal Infirmary of Newcastle-on-Tyne, from which, after seven years, he graduated as M.R.C.S., England. In 1846 he obtained the title of M.D. from the University of St. Andrews. While he was still in the twenties he undertook original researches upon the process of digestion and absorption in lower animals, wrote a book on the chronic diseases of the throat and was appointed lecturer on pathological anatomy at the Durham School of Medicine. He moved later to Newcastle where he acquired a consulting practice said to

have extended over the whole of the north of England. In 1859 he was made honorary M.D. by the School of Medicine of Durham. In 1862 he moved to London where he acquired an extensive consulting practice which he carried on uninterruptedly to the very last days of his life. His private practice seems to have been confined essentially to the diseases of the stomach. In London Hospital, however, where he went through all grades until he became senior physician, he taught many branches of medicine, beginning with physiology. Fenwick was a prolific writer on many subjects. He wrote several text-books which passed through a number of editions. In the later years of his life, his writings were mostly on subjects of gastric diseases. He was probably among the first to write a book on the diseases of the stomach. It was in 1865 and the title reads: "Morbid States of the Stomach and Duodenum." The ninth edition of that book was revised by him fourteen days before his death. He was a man of dignified reserve. He led a retired home life, which was due, it is stated, to a very delicate stomach, a condition which might have been also the reason for his paying special attention to the morbid conditions of that organ.

Franz Riegel died August 26, 1904, at the age of sixty-one, of a malignant neoplasm of the lungs. He was born February 9, 1843, at Brückenau, and was the son of a physician. He studied medicine at Würzburg and after graduating there with highest honors, took a post-graduate course in Vienna under Oppolzer and Stricker. Returning to Würzburg he became assistant first to Bamberger and later to Gerhardt, both celebrated clinicians of their time. In 1871 Riegel became privat-docent at the university, where he lectured on experimental pathology. In 1874 he was appointed director of the City Hospital in Köln, whence he was called (1879) to the University of Giessen to the chair of medicine, which was first filled before him by such celebrated clinicians as Niemeyer and Seitz. The twenty-fifth anniversary of this appointment was celebrated last May by his many pupils, friends and admirers, his assistants and pupils dedicating to him a valuable and extensive Festschrift. He then commenced to show the distressing symptoms of his vicious malady, which, after a few months of suffering, took him away from us in the midst of his active, useful life.

Riegel was a very earnest character, a savant who knew no leisure and no amusement, but hard work and earnest studies which to the last days of his fruitful life he devoted to the science and practice of medicine. His publications are numerous and all very valuable. Differing from most of the distinguished clinicians of his time for whom pathological anatomy was the essential factor of their scientific productivity, all of Riegel's works bear a physiological stamp, his interest centered in functional problems of life, and many of his clinical observations were supplemented by thorough experimental studies. His biographers say that the foundation for this direction of mental activity was laid in Vienna by his contact with Stricker. While I do not doubt that Stricker exercised a certain influence upon the future scientific direction of Riegel, I personally believe that the inclination for the study of functional rather than morphological problems is an inherent one with the individual. It was, so to say, congenital with Riegel. The subject of his thesis, which was written before he met Stricker, was already of a physiological character. It dealt with the respiratory movements in health and disease. Later he returned again and again to the studies of the respiratory organs, to stethoscopy, to the nature of asthma and its treatment, etc. What a fate to die of a malignant disease of an organ to the study of which he had paid so much attention! Undoubtedly he must have made his own diagnosis. Other extensive studies were devoted to the vasomotor influences, to the arterial pulse, to the venous pulse, to the contractions of the heart, to the conditions of the heart and blood pressure in nephritis, to the effects of jaborandi, caffeine, atropine and other drugs. A good part of his work, at least during the last two decades of his life, was devoted to the diseases of the stomach in which field he undoubtedly occupied the first rank. It would nearly be writing a detailed history of the present state of knowledge of gastric disease, were I to attempt to count up the work which Riegel and his able assistants have done in this field. By the present almost exclusive use of a test breakfast, it is practically forgotten that the importance of this method lies in the test meal and that this was first used and introduced by Riegel in 1879. The last work coming from the pen of Riegel was devoted to a discussion of the distinction between hyperacidity and hypersecretion. It is of psychological moment to know that Riegel himself often suffered from gastralgia accompanied by hypersecretion.

By the undertaking of Nothnagel to publish classical monographs on all chapters of medicine by leading clinicians, Riegel was induced to treat of the diseases of the stomach; it resulted in the production of a masterpiece. In the last months of his life he was engaged in the preparation of a second edition of this classical book. It was one of his great worries that he was unable to finish the revision of it. Let us hope that one of his many able assistants will be able to complete it in the spirit of the dead master.

Contribution to the Question of Thymus Hypertrophy.—The possibility of wrongly mistaking other conditions for hypertrophy of the thymus, merely upon the basis of the results of percussion alone, is firmly emphasized by G. TADA (*Jahrbuch f. Kinderheil.* Jan. 2, 1905). Internal and parasternal dulness, particularly to the left of the sternum, if unaccompanied by any definite symptoms, does not warrant the diagnosis of enlargement of the thymus, but should rather point to tuberculosis of the mediastinal lymph nodes.

THE FUTURE OF THE LARYNGOSCOPE AND THE STUDY OF LARYNGOLOGY.[1]

BY JOHN NOLAND MACKENZIE, M.D.,
OF BALTIMORE, MD.;
CLINICAL PROFESSOR OF LARYNGOLOGY AND RHINOLOGY IN THE JOHNS HOPKINS UNIVERSITY, AND LARYNGOLOGIST TO THE JOHNS HOPKINS HOSPITAL.

WE meet to-night to celebrate the making of an epoch. With simple, yet imposing ceremonial, the laryngologists of the world are to-day doing the man who made their handicraft possible deserved and conspicuous honor. Among other testimonials of their respectful and distinguished consideration and high regard, they have hung on the walls of the Laryngological Society of London—the city of his adoption—his life-like portrait, from the brush of a great artist, as a token of their admiration and affection—in loving and enduring memorial.

Surrounded by his British colleagues and by representatives from other lands, in the quiet dignity befitting such an occasion, he is to receive this graceful tribute to his worth and is to be brought face to face with the crowning glory of an hundred years.

He has seen his invention buried in an almost unfrequented grave—he has witnessed its resurrection, its desperate struggle for even recognition, its hard-fought battle for supremacy. And he has seen, too, the stirring events which have led up to its final triumph pass him by in orderly and stately procession; and standing on the threshold of another century of life, it has been vouchsafed to him to see through the vista of the years to come, the realization of his fondest dreams.

In this hour, when in the chief cities of the two great English-speaking empires, the laryngology of the New World unites with the laryngology of the Old to do honor to Manuel Garcia, it has occurred to me, in replying to the courteous and flattering invitation of the President and members of this body to be with you this evening, that it might not be inappropriate to ask what the future has in store for the application of the discovery which has linked his name so inseparably to the history of our art. It seems, too, that the occasion is a proper one to enter an earnest plea for the more perfect study of laryngology as a part of the general scheme of medical education.

The story of the past of the laryngoscope has been so often and, especially on this occasion, so eloquently told, that he would indeed be rash who ventured any variation on this theme. What most concerns us now is the question what is to be the final outcome of the early labors of him whose centenary we signalize with jubilee and memorial to-day? What will be their ultimate reward?

The future of the laryngoscope can, I think, be best discerned by following the history and development of the undergraduate study of laryngology, for it is chiefly along this line that the art of laryngoscopy is destined to come into common use. The general introduction of laryngology as a compulsory part of the curriculum of the medical college is the coming event which has already cast its shadow before.

The study of laryngology has been greatly neglected, until very recent years, in the medical schools of this country and Europe. It has either been omitted from the schedule of studies entirely or, in many colleges, at least, it is taught in a superficial or perfunctory sort of way that inspires neither faith in the instructor nor interest in the student.

Although the catalogue often tells in glowing terms of a course in laryngology, such a course will be found in practice to be like the "Co." in "A Tetterby & Co." a mere poetic abstraction, altogether baseless and impersonal. In very few schools has it been taken at all seriously, while it was not until the year 1893, and then in only one institution, that it was made an obligatory study and a requisite for the degree of Doctor of Medicine. Nor has the position assigned to laryngology in the university been at all commensurate with its importance, and yet of all the pure specialties, that is to say, those branches requiring special technic and special instruments and methods of precision, it is the most generally useful to the diagnostician and general practitioner. The time has gone by when it is necessary to press the claim of laryngology to recognition of the highest rank. We no longer apologize—we demand. There was a time, now very remote, when laryngology meant little more than the art of laryngoscopy, and it was often prostituted to inferior use. It is no longer a simple method of examination and demonstration, but an enduring, vital force in medical progress, which lives and breathes and has its being within the very heart of inner medicine itself. It is no longer the Canaan of the quack, but a fair land of promise for the highest order of research. It should therefore hold high place in the curriculum of the college and university. It should have a separate, thoroughly equipped department and a full professorship. While I do not wish to overestimate the relative value of laryngology in a scheme of medical education, and while I am fully conscious of the present congested condition of the schedule and the future necessity of a large number of elective studies, I am of the opinion that, in view of its very great importance, it should remain as it is in the curriculum of the Johns Hopkins University—an obligatory study. If laryngology and ophthalmology should ever disappear from the list of compulsory studies, they should be the very last to go. Their exile from a curriculum in which they have been once established would be, not an act of progress, but of retrogression.

The time is fast approaching when a knowledge of the use of the laryngoscope will be as

[1] Address before the New York Academy of Medicine, March 17, 1905, at a meeting to commemorate the one hundredth birthday of Manuel Garcia

necessary to the equipment of the advanced physician as is now a knowledge of the physical examination of the chest. Not only the schools, but the public will demand it. It is impossible to exaggerate its importance to the medical and surgical diagnostician in the early detection of disease, not only in the respiratory organs themselves, but, of equal, if not superior importance, in neighboring and remote organs of the body. Long in advance of the appearance of classical signs and symptoms of disease in other organs it often points the way to grave disorder.

Time was, not very long ago, when physical diagnosis of the chest was not required of the medical undergraduate and when the special knowledge of the art was supposed to be, and practically was, confined to the few. Now every practitioner of medicine knows, or thinks he knows, it all. The laryngoscope will go, indeed is already going, the way of the stethoscope and become the common property of the general practitioner of medicine. It will be an absolute necessity in that great specialty, which next to surgery, is the highest of them all—internal medicine. The time is quickly coming when the art of laryngology will be linked to general medicine as the art of physical diagnosis of the chest has become its inseparable associate. How it must rejoice the heart of the old man across the seas to feel that a knowledge of the working of his invention, which together with its first results was consigned to obloquy and oblivion in the Transactions of the Royal Society, is, in some quarters at least, necessary to the acquisition of the medical diploma and is destined in time to come into universal use among medical men.

The great advance made by laryngology in recent years, the rapidly growing necessity of a knowledge of its special province in the elucidation of obscure conditions in other and remote organs of the body, the popularity of its study and the accordingly rapidly increasing number and far-reaching geographical distribution of its votaries, are only some of the causes that have led to the increasing general knowledge of the art of laryngoscopy. But perhaps the most significant and convincing phase of the question is to be found in the slow but certain progress of laryngology to a commanding place in undergraduate instruction. It is in the study of laryngology in the undergraduate curriculum that will be found the compelling force and resistless undercurrent that is to carry the laryngoscope to its permanent abiding place beside the stethoscope and other absolutely necessary instruments of precision in the outfit of the medical diagnostician.

The proper time to lay the foundation for the educated laryngologist is in early life, in his early studies, in his undergraduate days; for it is at this period of his medical training that he is in the best position to acquire that fundamental knowledge and, what is of more importance, that breadth of mind which is so essential to his future development. At this receptive period of the development of his mind he can best recognize the limitations of each special branch of medicine and can best be taught to generalize profoundly not in one but in all departments of medical thought. It is at this stage of his career that it is impossible for him to cut loose from the other departments of medicine. The growth of his special studies goes on *pari passu* with his advance in other lines of work and he is brought in daily contact with disease in other organs of the body. He learns at the outset that no department of medicine is isolated and independent, but that they are all mutually dependent and coordinate. And if he is made of the proper stuff, this fundamental lesson and illuminating first impression will follow him in his special work in after-life as an inspiration and a guiding star.

Let us now turn to the development of the study of laryngology in our medical schools and in doing so you will forgive me if for a moment my remarks become personal and reminiscent. I may perhaps best illustrate the different phases of its development by giving a chapter from my own experience.

Twenty-four years ago, when I was on the working staff of the then largest laryngological clinic in London, the Hospital in Golden Square, there was no place in that vast metropolis where the student could get systematic instruction in special work. None of the colleges or hospitals gave lectures on laryngology—nowhere was it requisite for the degree. All strangers in London interested in the specialty, came to Golden Square, attracted there by the personality of Morell Mackenzie, then at the zenith of his popularity and power. With all the enormous material at our command, there was practically no instruction given, except in the way of hasty demonstration of cases; and if the student or visitor learned anything, it was through close personal observation on his part and not through any gigantic effort to impart knowledge on the part of the medical staff. With one or two exceptions the latter directed their attention almost solely to the larynx and thyroid gland, and the nasal passages were only examined when in quest of a polypus or when the attention was irresistibly attracted to these organs by the horrible stench of an ozena. The nasal cavities were practically neglected and the only apparatus in the hospital for the treatment of their diseases consisted of a pair of forceps for the removal of nasal polypi, and a handball atomizer with a detergent solution for the treatment of ozena or any other miscellaneous disease of the nose that might irresistibly obtrude itself upon the recognition of the medical staff. When later I studied on the Continent, I found a like condition of affairs. In no school was laryngology taught to undergraduates, and the only means of acquiring special knowledge of the subject were the imperfect courses on diseases of the larynx, given by the professors and their assistants. There

was no special course in rhinology, which subject, as in England, was left entirely alone. I returned to my own country to find the same neglect of the study of laryngology that I had found in England and on the Continent.

In 1887 I was called to the chair of laryngology and rhinology in one of the oldest medical schools in America. The annual catalogue and circular told in flamboyant terms of a course on laryngology which at once set the mind to wondering how it would be possible for a student to escape from the institution without absorbing all that was coming and all that had gone before in that imperial domain. On my induction into office, I cast about me for the paraphernalia which should accompany my lofty position. I found in a dark closet or rather hole which led under the seats in the amphitheater where the lectures and clinics were given, a dilapidated lamp whose structure and general appearance of antiquity suggested the possibility that it might have been originally trimmed by some spirit in the age of fable, a broken laryngeal mirror, from whose back the quicksilver had long since departed and a cardboard diagram, colored blood red, like an eczema, which was supposed to represent the laryngeal image, but looked more like the Baltimore fire. These crude implements of the laryngoscopic art I found—and a tradition. According to this tradition my predecessor in office was accustomed to meet his class at the opening of each session, and, after a few introductory remarks, disappeared with a patient into the closet under the seats and closed its door. There was a period of breathless silence and intense expectation on the part of the students, during which time all manner of strange noises were heard in the darkness beneath them. These finally ceased, and the professor reappeared, his face radiant with satisfaction, and advancing toward the class, with the laryngeal mirror held aloft, triumphantly exclaimed: "Gentleman, I have seen the vocal cords!" According to the same tradition, that was all the laryngology the class got during the session.

The quarters assigned to me in the dispensary, where the patients were examined, consisted of a little compartment or "box" from which all sunlight and fresh air were carefully excluded, and in the foul atmosphere of which it is probable that two of my assistants subsequently contracted tuberculosis. It was thus thoroughly equipped and under such cheerful conditions that, without either moral or financial support on the part of the executive branch of the institution, I began the task of teaching practical laryngology to undergraduate students. Fortunately, I had good assistants, with whose aid I soon built up an excellent clinic, so that we were enabled to give the men during the session demonstrations of most of the diseases of the upper air-tract and all the common operations on the nose and throat. I gave the lectures and clinics, and my assistants superintended the instruction of the students in the dispensary. Although attendance in the department of laryngology was not compulsory, and although no examinatoin was ever held in this branch, the course was largely attended and many became so much interested in the subject that they subsequently took it up as a specialty.

This was practically the condition of affairs in the undergraduate study of laryngology, when in 1889, the Johns Hopkins Hospital threw open its doors, and when, several years later (1893), the medical school in connection with it and the university was formally opened. The Johns Hopkins University deserves the credit of being the first institution of learning, either in this country or beyond the seas, to give to laryngology the prominence which its place in medical education demands. It was the first to make it an obligatory study in the curriculum, and to make an examination in this branch a requirement for the degree of Doctor of Medicine. This was one step, and in consideration of the former neglect of the subject, a prodigious one, to place laryngology where it properly belongs and to give it the position and prestige to which it is justly entitled. It marks, therefore, an important era in the evolution of the undergraduate study of laryngology. As a matter of historical interest, and in response to many inquiries on the subject from teachers of laryngology in various parts of the country (which simply echo the forward march of progress in this department that is being sounded in other serious colleges throughout the land), although I have done so before, I think I may be pardoned if I again ask attention to the method of teaching the specialty which has been adopted in this institution. I shall content myself with simply giving a mere outline of the work, and shall not enter into matters of detail.

The time required for the degree of Doctor of Medicine is four years, of nine months each. The requirements for entrance to the medical school are rigid, only those being admitted who give evidence of having had a liberal education as indicated by a collegiate degree in arts or science, including an acquaintance with Latin, a reading knowledge of French and German, and adequate training in physics, chemistry and biology. The first two years are devoted mainly to practical work of all kinds in the laboratories of anatomy, physiology, physiological chemistry, pharmacology and toxicology, pathology and bacteriology. During the last two years much of the student's time is spent in practical work in the wards, laboratories and dispensary. It is not until the fourth year that the class enters the special departments. It is my intention to give a course on laryngology in the third year, so that when the student enters his graduating or fourth year course, he may be at least familiar with the use of the mirror. I mention these facts simply to show that, when the student reaches me, he is quite thoroughly trained, not only in the use of

his brain, but also in the use of his hands. By constant practical work for three years, he has acquired an amount of manual dexterity which enables him to master the art of laryngoscopy with relative ease.

The graduating class is divided into sections—each section (of the fourth-year class) attends for one and one-half hours daily during two months, the laryngological and rhinological department, where they receive practical instruction from my assistants and myself. After preliminary drilling in the use of the laryngoscope and other technical procedures, and in diagnosis, the student assumes the work of clinical assistant. He is given pathological material for examination and diagnosis, and is encouraged to report cases and read papers before the Hospital Medical Society, to look up the literature of interesting subjects connected with laryngology, to observe for himself and, if he has time, to do original work. He is taught to investigate and to inquire, and I may say just here that it often requires a very high order of human ingenuity to construct an evasive answer to some of the conundrums with which I am frequently assailed. He takes his first lesson on the human subject—gets his first impression from Nature. I formerly used models; but some one stole them and I am glad they are gone.

By the above method, the teacher comes into direct personal contact with each member of the class, and is enabled to measure the mental status and personal equation of the individual. In no other way can laryngology be properly taught. It is hard work, but it pays in the results which are accomplished. Laryngology can not be taught by text-book or lecture. It must be taught over the shoulder of the instructor, and on the part of the student, must be acquired by direct contact with, and personal observation on, the living subject.

Each student, by this method, becomes an individual responsibility—a special care. And just here let me observe that the day of operating before crowded benches is no more. The amphitheatre with its old-fashioned surgical clinic will soon become an anachronism. Tier after tier of seats in an operating room is simply a waste of space which could be utilized in a far more profitable manner. No more play to the gallery—no more spectacular performance! Of all the special studies, laryngology is the most difficult and troublesome to teach. It involves hard, painstaking work and patience, not only on the part of the teacher, but also on the part of the student. Each student, as I have said before, is practically a special pupil and must be individually instructed; and to that end the chief of the department should have a corps of trained assistants whose work he may complement and supervise.

While the didactic lecture is fast becoming an anachronism, I do not believe that the day of its usefulness is completely gone. I give a systematic course of weekly lectures to the entire class, which are supplemented by pathological and clinical demonstrations, on the anatomy, physiology and commoner diseases of the upper air-passages and their relations to morbid processes in other parts of the body. In this course especial attention is paid to diagnosis. The object of these lectures is two-fold; (1) to give in a concentrated form and in the shortest possible time information which could not be acquired except by great additional labor on the part of the student, and (2) to avoid endless repetition in the section room. One year I abandoned the didactic lectures altogether and gave up the time to practical work alone; but the change was not satisfactory for many reasons and I was obliged, therefore, to return to this method of instruction.

Among the many questions that are asked me is the justly serious one concerning examinations. The question of the value of examinations is a very important one and one which is destined soon to be pressed to final settlement. While I cannot go as far as my gifted friend and colleague, Professor Mall, who is of the opinion that it would be well to separate them from the course of instruction entirely, I must confess that I am very much in sympathy with him in the main points of his contention. But until a more rational and exact method of accomplishing the same results be devised, I am afraid the examination must remain as a necessary evil. It is often a farce. One of the best examination papers I ever received was from a student who, on account of serious illness, was compelled to absent himself from the very lectures on which the class was being examined. He had used the notes of a fellow student and came back at me with almost my own words. In the university in which I received my first medical degree, instruction, except in the department of anatomy, which was practically and ably taught, was entirely by didactic lectures. We sat all day in the lecture room taking notes, and spent the entire evening "cramming" them for the next recitation. We never saw a medical case. Once during the session, the professor of surgery brought in the colored janitor, stripped him and bandaged his legs and arms. This was our only course in practical surgery. Those were the good old days when, as Mall says, the students "heard much, saw little and did nothing." When the day of examination arrived I knew my text and note books from cover to cover, and could locate with unerring accuracy any required item of information to the page and to the line. My memory was so saturated with medical lore that it took me some years after I left college to forget it. I was invincible in the examination room, but helpless at the bedside.

The best examination is the observation of the student in his daily work and the resulting estimate of his personal equation. During the first two years I gave an oral examination at the end

of the term, carrying each student over the entire field covered by the lectures, but, as the size of the class increased, this had to be abandoned, and I gave a single written examination of which the following, which was my first, is an example:

1. Give the physiology of the nasal and accessory cavities.

2. General symptoms and diagnostic signs of suppuration in the nasal accessory cavities—diagnosis of pus in the antrum maxillare.

3. Early laryngoscopic diagnosis of tuberculosis and cancer; characteristics of syphilitic, cancerous and tuberculous ulceration in the upper air-passages.

4. Chief causes, symptoms and laryngoscopic signs of double, complete abductor paralysis.

5. Nature and diagnosis of so-called nasal reflex neuroses.

Now, instead of the written examination of the entire class at the end of the session, each group of students is given a thoroughly practical one at the termination of its section work and this examination is final.

Each student who graduates from the school must be familiar with the use of the laryngoscope and be able to diagnosticate typical cases of the commoner diseases of the upper air tract. He is marked as in the other departments and the examination affects his standing in the class and operates for or against his chances for hospital positions after graduation. In other words, for the first time in the history of medical education this branch of study has been taken absolutely seriously.

This, in brief, is a simple outline of the way in which laryngology is taught in the Johns Hopkins Medical School. I am fully aware of the imperfections of the method; but everything must have a beginning, and time and further experience will doubtless make it more perfect. In the classes under my care it has so far been very successful. The net result is that when the student graduates he has made a very fair groundwork on which to base, in the future, if he will, a more elaborate study of the specialty.

One of the most encouraging signs of the times is the largely increased amount of space given to laryngology in some of the leading general hospitals of the world. Not to mention others, this is notably the case in such institutions as the rehabilitated London Hospital and the Massachusetts General Hospital in Boston, where entire suites of rooms are devoted to this special department and where the most excellent work is being done. Princely apartments and imposing apparatus, however, count for nothing in the absence of the proper atmosphere to breathe and the proper spirit to direct. Well-directed effort in serious environment can accomplish wonders even in scant quarters and with poor equipment—without them, both material and opportunity go to utter waste. The special department should be (as it is in the Johns Hopkins University), a part and parcel of the organic whole and indestructible trinity of University, Hospital and Medical School, and this leads me to say that the proper place for a special hospital, particularly if it is to be dedicated to teaching, is in connection with a large general hospital, of which it should be, if possible, an integral part, inseparable from its machinery and moving in sympathy and unison with its other departments. For, apart from the obvious convenience and salvation of time to the student, it fosters a more liberal spirit and diverts him from the groove to which a too narrow specialization often acts as a centripetal force. Under these conditions, the laryngology of the future will best be taught. The student in this way is made to see at every turn the relation of his special study to other special branches and general medicine.

No hospital, general or special, ever completely fulfills its mission until it becomes a center of teaching, a factor in education, a means for the dissemination of knowledge.

The instructor will fall far short of his duty if he does not make the student forever bear in mind that laryngology is an inseparable part of general medicine—that the pathology of nasal and laryngeal diseases is not an isolated pathology: that the appearance of diseases in the upper air-tract is governed by the laws that condition the development and course of disease in general, and that the rational interpretation of these affections presuppose therefore the application of general pathological principles to the peculiar conditions which the anatomical and physiological functions of the structures involve. Above all, he should remember that peculiarity of structure is not anatomical isolation; he should remember the correlation of organ and organ, the sympathy of tissue and tissue which make up the perfect physiological life of man. In looking upon the subject from the high vantage ground of general pathology and laws of health, the student is in a better position to apprehend the rôle which external and internal influences play in the evolution of diseases of the respiratory apparatus, than if he viewed the subject from the level of a narrow specialism or from the standpoint of the mere empiric.

Laryngology should not be studied apart but kept in constant and closest contact with all the other departments of the university. Let there be more fraternity among the different specialties—more cooperation. If special workers in the different departments of medicine would, instead of holding aloof from each other, combine the special knowledge they possess in a common endeavor to elucidate the difficult problems which daily confront them, the hostile cry of ignorant criticism, which is so often directed against them, would be forever silenced by their discoveries for the common weal.

What effect will the increasing general knowledge of laryngological technic have upon the future practice of the specialty?

In some ways, and for obvious reasons, it will mean the passing of many. It will mean, let us hope, the relegation to the rear of that unfortunately numerically large element in our midst whose chief claim to special knowledge resides in the possession of the necessary apparatus which goes to make up the armamentarium of a worker in this field and whose highest conception of their calling is the "method of the nickel in the slot." But in other ways, as for example, by exacting more rigid requirements in laryngological education and by elevating it to a higher plane, it will doubtless redound to its everlasting good.

We shall soon reach a point where we shall be at the parting of the ways. On the one hand stretches out the broad highway that is easily trod by the superficial, the careless, the ignorant. On the other hand the narrow pathway, beset with obstacles which can only be conquered by him who, after a broad and liberal general medical education, bends his energies to constructive work and sets his face in the direction of high ideals.

The fate and fortune of laryngology is in the hands of the coming generation of teachers and students and it will depend upon their character whether the specialty will endure as a vital illuminating factor in medical progress, or whether, in the contest that is sure to come, it will go down before the might of the forces that are arrayed against it. If combat comes, let laryngology not idly wait to be obliterated or absorbed, but let her invade fresh territory of medical thought and with conquering arms extend the boundaries of her realm.

The laryngologist of the future will, as never before, be forced from intellectual solitude and isolation into the arena of the world of outside interest and activity. His voice will no longer cry aloud in the loneliness of special seclusion, but will be heard ringing through every avenue and by-way of the City of Medical Learning and resounding in its forum of debate.

For my own part, I have the utmost confidence in the future. There will be no retrogression, and in the not distant day when the art of laryngoscopy shall be looked upon, not as an accomplishment, but as a necessity, the fittest will survive. The time will come when the scientific laryngologist will be absolutely indispensable not only in the field of practical medicine, but in the realm of original research; and in the future evolution of our special knowledge it will come to pass that the waves that have been set in motion by the ripple caused by Garcia's invention will break on every shore of medical thought.

The study of laryngology will reach the full fruition of its hopes and aspirations by becoming the inspiration of a higher effort and a loftier ideal. It will teach the student not to contract but to broaden the horizon of his intellectual activities. It will make him understand that the laryngoscope is not merely a device for exploring certain hidden recesses of the body and for the demonstration of that which is already known; but an agent of positive power in future research,—a means of scientific expansion and exploration of the unknown. Let laryngology walk with becoming humility beside the great pioneer forces of human endeavor, aiding them, it may be at first, in an humble and unostentatious way, but still contributing to their progress through the trackless wilds of the land that is untrodden and unknown. Undaunted, undismayed, let them press forward, side by side, until the wilderness shall blossom as the rose and Nature's wild forest ring with the shout of their exultant discovery. When this ideal shall have been attained and this conception of our art is realized, then will the study of laryngology light the way for the triumphant march of scientific medical achievement, and the laryngoscope will become, more than ever before, an instrument of progress and power.

MEDICAL PROGRESS.

MEDICINE.

Chylous Ascites.—JAMES F. BELL (*Am. Med.*, May, 27, 1905) reports a case, in a man, age fifty-seven years, in which the amount of fluid withdrawn from October 1 to December 17 aggregated 106,370 c.c. There was little loss of strength or weight, the patient, at the last paracentesis, weighing but five pounds less than his normal average. The history would suggest a rupture of a large lymph duct, the thoracic duct, the receptaculum chyli, or a chylous cyst of the mesentery which has continued to discharge into the peritoneal cavity. The cause of the rupture is unaccounted for and no growth or neoplasm can be found in the abdomen. Dr. S. P. Beebe discusses the literature on analysis of chyle and reports the results obtained from examination of the fluid in this case.

Heroin Habit.—C. E. ATWOOD (*Med. Rec.*, June 3, 1905) notes the variety of cases of heroin addiction and reports one occurring in his practice. The patient was a married woman of nervous heredity to whom the drug had been given as an anodyne with the assurance that there was no danger of forming a habit. She continued to take the drug after the original indication for its use had disappeared, and when coming under treatment was giving herself four grains hypodermically in divided doses daily. A cure resulted from immediate withdrawal with symptomatic, sustaining, and eliminative treatment. The abstinence symptoms were, however, so severe that in a second case the author would resort rather to gradual withdrawal.

Quinquaud's Sign.—This has been described as almost invariably present in cases of chronic alcoholism, by the Frenchman, Quinquaud, and also by the German, Fürbringer. The phenomenon is elicited as follows: The patient places his spread fingers in the palm of the observer's hand. At first nothing unusual is felt, then there is imparted to the examining hand what appear to a series of faint shocks, as if the bones of the fingers were being knocked against each other and against the hand of the observer. These movements may vary from a gentle rubbing to a well-marked crepitation. The value of this sign as an indication of chronic alcoholism has been disputed by various observers, and HOFFMAN and MARX (*Berl. klin. Woch.*,

May 8, 1905) were therefore led to make a more thorough investigation. For this purpose they examined carefully 1,018 inmates of a German prison, who were divided into three classes according to the amount of alcohol consumed. The authors believe that the sign of great value and ascribe greater worth to it than other previous investigators. The absence of the sign, or its presence to a moderate degree, does not permit any absolute conclusions to be drawn either for or against alcoholism, at least as regards total abstinence or abuse, although the probability in favor of abstinence is as three to two. A marked grade of the phenomenon indicates excessive drinking with a probability of three to one. In looking into any possible relation between the ordinary tremor of the hands and this phenomenon, the authors found that there was apparently no connection between the two, one being found in numerous instances without the other. They believe that it is due to a peculiar muscular movement which produces vibrations of the bones in the long axis of the arm, the usual tremor being produced by a transverse motion. In the former case, individual groups of muscle fibers are involved, while in the latter, the whole muscle is concerned.

Observations Upon Amebas Infecting the Human Intestine, with a Description of Two Special, Entamœba Coli and Entamœba Dysenteriæ.—Charles F. Craig (*Am. Med.*, May 2, June 3, June 10, 1905) says that from his observations the following conclusions are warranted: (1) The intestine of man may be infected with two varieties of amebas, one pathogenic (*Entamœba dysenteriæ*), and the other non-pathogenic (*Entamœba coli*). (2) *Entamœba coli*, the non-pathogenic variety, is found in 65 per cent. of healthy individuals studied, and in 50 per cent. of individuals suffering from diseases other than dysentery, if a saline cathartic has been administered. (3) These organisms can be easily distinguished in both fresh and stained specimens. (4) They differ widely in their method of reproduction, and this is the most important method of distinguishing them. (5) *Entamœba dysenteriæ*, whether fed in milk or injected through the rectum, produces in kittens the typical lesions of amebic dysentery as observed in man. (6) In kittens, *Entamœba coli*, whether fed in milk or injected through the rectum, is absolutely harmless. (7) Neither feeding experiments nor rectal injections of fecal material or the bacteria occurring in such material produces any of the lesions of amebic dysentery, unless *Entamœba dysenteriæ* is present.

Sign of Value in Splenic and Hepatic Disease.—T. Horace Evans (*Am. Med.*, June 10, 1905) describes a method uniting both palpation and percussion. The abdominal walls should be relaxed, the lower extremities slightly flexed on the abdomen, and the leg on the thigh. The patient should open the mouth, breathing lightly through it. The physician gently plunges the fingers of one hand into the abdominal wall at the level of the anterior or lateral costal margin, and rather under the osseous curtain of the same. With the fingers of the other hand he firmly percusses over the supposed site of the organ, spleen or liver to be examined. Very delicate sense in the percussion hand will discover a variation of resistance, according to the state of the underlying organ, for the retaining hand secures the liver or spleen, as the case may be, between itself and the superior structure, the diaphragm. The more valuable result is the sensation derived from the parenchyma striking the retaining fingers, which are pressed into the abdominal wall. By a little experience the peculiar shades of consistency of the spleen or liver will make themselves readily perceptible. Any enlargement accompanied by softening or rigidity should be quickly distinguished. In case of typhoid this method is successful for the early diagnosis of splenic variations.

Pathologic Changes in Appendicitis.—E. MacD. Stanton (*Journal A. M. A.*, June 10), has studied the pathologic changes in the peritoneum in 185 cases of appendicitis, and of the appendix in 188 cases, all occurring in the Albany Hospital during the last six years, the notes and sections of which are on file in the Bender Laboratory. The relations existing between the character of the lesions and the stage of the disease were particularly studied in all. The histologic changes in appendices removed during the first few days of the disease were essentially similar and consisted in a severe diffuse inflammation, accompanied by focal areas of hemorrhage and necrosis. These latter may increase in extent during the first few days and give rise to macroscopic areas of gangrene or they may remain microscopic and be quickly repaired. The various anatomic varieties, gangrenous, perforative and ulcerative are due to the extent and distribution of these necroses. Evidences of repair are seen as early as the third day and the process is distinctly reparative in non-gangrenous cases by the fifth day. Even in cases with macroscopic evidences of gangrene, unless a later acute process is engrafted on the original one, the repair proceses predominate by the sixth or seventh day. Evidence of recurrence was observed in 10 or 15 per cent. of the cases after the first week. Repair is rapid during the second week of the attack; fibroblasts, newformed blood vessels and lymphocytes forming the principal features of the picture. The rapidity of repair depends largely on the amount of damage done and on the presence or absence of a periappendiceal exudate. By the end of the second week in most cases repair is so complete that new connective tissue may be the only evidence of previous inflammation, but in cases with extensive exudates, signs of active organization of the exudate itself are still in evidence. After the second week, except in cases with extensive periappendiceal lesions, the histologic changes are seen chiefly in the more fibrous nature of the new connective tissue which is still recognizable. In cases operated on a month or more after an acute attack, 78 per cent. were cases of chronic interstitial or obliterative appendicitis, frequently accompanied with adhesions. In 6 per cent the appendices were apparently normal, and in 16 per cent. the changes were confined to the mucosa. In no instance were the changes confined to the mucosa in the cases examined during the first ten days of the attack. In this series of cases, purulent fluid was found outside of the appendix in 51 per cent. of the patients operated on from the third to the tenth days. After the tenth day the number of cases with abscesses steadily decreased while the number of those with adhesions and without pus rose correspondingly. This, Stanton thinks, was due to the less extensive peritoneal involvement in most of these late operated cases rather than to resolution by absorption. In a number of cases, however, the massive adhesions indicated the prior existence of extensive periappendiceal exudate. After the third day the exudates on the peritoneal surface contain highly vascular granulation tissue, and he thinks it probable that the high operative mortality between the third and tenth days may be in part due to absorption from the denuded granulating surfaces as well as to the extent of the peritonitis and the bad general condition of the patient.

Contribution to Hemophilia.—F. P. Kinnicutt (*Med Rec.*, June 10, 1905) describes the history of a

hemophiliac whose symptoms began in infancy and persisted with great severity until the time of his death, at the age of sixteen years. Frequent attacks of pain and swelling in the joints, including the smaller articulations, due to hemorrhage, and finally leading up to permanent structural changes, were a prominent feature of the case, and death was brought about by an intra-abdominal hemorrhage. The ancestry could be traced with much minuteness, but no evidence of heredity was found. The general nature of the disease is then discussed with especial reference to the occurrence of joint manifestations, and the pathology of such conditions. The author points out the possibility of confusing arthritis of this nature with that of tuberculous or rheumatoid type, and says that in joint affections bearing a resemblance to tuberculous disease in infancy and childhood, the family history, as well as the personal history, should be studied carefully previous to operative treatment. The tuberculin test in a hemophiliac is not without danger from injury by the needle. The question of treatment is considered at some length, the preference being given to the physiological styptics rather than to such agents as tannic acid, salts of the heavy metals, etc. The author speaks highly of the value of calcium chloride in this connection, and says that the present views of the therapeusis of hemophilia may be summarized as follows: (1) The internal administration of the lime salts, especially of the chloride of calcium, in doses of two grammes (30 grains) twice or thrice daily. Its continued use should be interrupted every two or three days by a period of twenty-four hours. (2) The application of solutions of the same salt, with compression, for accessible surface bleedings. Aqueous solutions of one-half per cent. are efficient. Another convenient mode of employment is in the form of a finely powderd chalk mixed with one-half per cent. solution of the calcium chloride. The less soluble lime salts, such as calcium phosphate, are equally efficient for local application. (3) The use of a combination of one-half per cent. solution of calcium chloride and one-sixth volume of a solution of nucleo-albumin, for local application. The nucleo-albumin can be obtained from aqueous extracts of various cellular tissues—testicle, thymus, thyroid, ovary, etc. If the prepared extracts are not available, a supply may be procured readily by mincing any of these tissues in a weak alkaline solution (1-500 solution carbonate of sodium) and filtering through gauze after a few minutes. (4) The application of a stream of carbonic-acid gas to the bleeding surface, in accessible hemorrhage. Its inhalation, freely mixed with ordinary air or oxygen, in concealed hemorrhage. (5) The use of four per cent. solution of choral hydrate for surface bleeding, and also of adrenalin (1-1,000) with compression.

Large Dose of Quinine in Pneumonia.—F. H. POOLE (*Journal A. M. A.*, June 3) reports that he has recently treated thirteen consecutive cases of pneumonia among Indian school children with large doses of quinine, according to the method advocated by GALBRAITH (*Journal A. M. A.*, January 28, 1905, p. 291) without mortality. The initial symptoms common to all cases were intense frontal headache, epigrastic distress and vomiting, and in eight cases epitaxis also occurred as an initial symptom. Three of the five boys had epistaxis at the onset and all had it repeatedly during the quinine treatment. Of the eight girls five had it as an initial symptom. Two of these had never menstruated, but the menses appeared during the treatment; in the other three they also appeared, though not due, and in spite of the fact that the patients had always previously been regular in this respect. In none of the girls did epistaxis appear after the initial symptoms. Poole asks: was this hemorrhagic tendency a part of the disease and peculiar to this epidemic, or were the epistaxis of the onset due to the infection and the later hemorrhages to the treatment? The minimum single dose of quinine given was fifteen grains, the largest thirty-six grains. These large doses proved a genuine stimulant to the heart and circulation and appeared largely to allay the anxiety of the patient and to secure sleep.

Council on Pharmacy and Chemistry Reports on Acetanilid Mixtures.—The first official publication made by the Council on Pharmacy and Chemistry, appears in the *Journal A. M. A.*, May 27. A sub-committee has purchased in the open market original sealed packages of various proprietary and patent remedies containing acetanilid—some of them represented to be chemical compounds and publishes results of its examination of them as follows: Ammonol: acetanilid, 50; sodium bicarb., 25; ammonium carb., 20. Antikamnia: acetanilid, 68; caffeine, 5; citric acid, 5; sodium bicarb., 20. Koehler's headache powders: acetanilid, 76; caffeine, 22. Orangeine: acetanilid, 43; sodium bicarb., 20; caffeine, 10. Phenalgin: acetanilid, 57; sodium bicarb., 29; ammonium carb., 10. Salacetin: acetanilid, 43; sodium bicarb., 21; sodium salicylate, 20. All of these were mixtures. The *Journal*, commenting on the work, calls attention to the danger involved in the physician's prescribing such a remedy as one of the above without knowing that it contains acetanilid. The report is extremely conservative, and repeated analyses have been made so that no erroneous statement should be published.

PATHOLOGY AND BACTERIOLOGY.

The Bone-Marrow in Disease.—Even in this age of active pathological research, the bone-marrow has rarely received sufficient attention and it is to the credit of B. WOLOWNIK (*Zeitsch. f. klin. Med.*, Vol. 56, Nos. 5 and 6) to have pointed out that very often characteristic pictures are obtained in the various disorders. Thus, in tuberculosis, sepsis, pyemia, heart disease, nephritis and carcinoma, the myelocytic type prevails, while in pneumonia, cirrhosis of the liver and other pathological conditions, the lymphocytes are particularly common. There seems to be a distinct parallelism between the large lymphocytes and the myelocytes, and the polynuclear neutrophiles are usually most numerous with suppuration or ulceration. The largest percentage of eosinophiles occurred with pneumonia and nephritis, and if the eosinophiles were increased in other diseases, a nephritis was usually also present. In tuberculosis and carcinoma, a marked increase of giant-cells and normoblasts was noted and a very low percentage of megaloblasts seemed characteristic for nephritis and a few cases of carcinoma.

Agglutination and Hemolysis Through Staphylococci.—In order to determine if there is any difference in the behavior of staphylococci, C. FRAENKEL and O. BAUMANN (*Münch. med. Woch.*, May 16, 1905) examined a large number of these germs from various sources. Hemolytic action was not shown by all, and some dissolved the red blood cells of rabbit's blood early, others late. The most intense hemolytic action was always manifested by the most pathogenic types. Hemolysis could be checked by antihemolysin, obtained by treating rabbits with gradually increasing doses of staphylolysin. The staphylolysin possesses both a haptophor and a toxophor radical; if kept at a low temperature with some red blood cells, the haptophor radical will unite with the latter without causing a solution

since the toxophor radical acts only at a higher temperature. Staphylococci which did not bring about hemolysis at first, did not acquire this property even when injected into mice. An interesting observation made, was that staphylococci causing hemolysis are not well agglutinated by staphylococci which lack this property. The authors therefore conclude that two varieties of these germs should be recognized: hemolytic, pathogenic and non-hemolytic, saprophytic staphylococci.

Toxic Action of Sublimate.—According to D. Bokorny (*Münch. med. Woch.*, May 16, 1905), algae forms excellent objects to study the toxic action of sublimate, since the earliest changes can well be observed under the microscope. The surprising observation has been made that if a certain amount of algae is added to a solution of sublimate as dilute as 1 to 1,000 million, distinct discoloration of the chlorophyll bands may be seen after eight days, showing that death of tissue has set in. The cause of this is an absorption of sublimate by the tissues, so that eventually a much larger amount is brought into contact with them. By a large series of experiments, it could be determined that 0.5 milligrams of sublimate can poison 100 milligrams of protoplasm.

A New Counting Chamber for Blood.—A new counting chamber, devised by K. Burker (*Münch. med. Woch.*, May 9, 1905) is said to be free from all the defects of the original Thoma-Zeiss chamber. The cover-glass can be made to fit very tightly, since it is adjusted before the chamber is filled. Unequal distribution of the red cells is avoided as the chamber fills instantaneously by capillary attraction. Since the chamber is open on two sides, atmospheric pressure will have no influence, and perfectly accurate counts are possible in high altitudes. The counting is facilitated by a scale to be placed into the ocular of the microscope, while in another form, the chamber itself is ruled into squares.

The New Asiatic Blood Fluke.—Ch. Wardell Stiles (*Am. Med.*, May 20, 1905) calls attention to the fact that the newly described Chinese blood fluke *Schistosoma cattoi 1905*, may be identical with a fluke *Schistosoma japonicum 1904*, described for man and cats in Japan. The new species is characterized by the absence of spinose warts on the male and the absence of spine on the egg, while the African blood fluke *Schistosoma hæmatobium*, has spinosa warts on the male and a terminal or subterminal spine on the egg. Clinically, in cases of infections with the African fluke both visical and rectal symptoms have been reported, but all reported infections with the new Asiatic fluke have thus far been intestinal. Another important clinical point is the possibility that some of the cases of cerebral distomatosis, heretofore attributed only to the lung fluke *Paragonimus westermanii*, may possibly be due to the new Asiatic blood fluke.

The Elective Action of Chloroform on the Liver. Doyon has demonstrated that in certain conditions chloroform produces the following parallel changes: Incoagulability of the blood, a disappearance of fibrinogen from the plasma and lesions of the liver. M. Doyon and J. Billet (*Comptes Rendus*, May 8, 1905) have found that chloroform has an elective action on the liver, with the exclusion of all other organs, with the exception of the kidneys. Introduced into the stomach of the dog, chloroform causes the following changes in the liver: Abundant hemorrhages, an enormous accumulation of polynuclear leucocytes in the interlobular spaces, degeneration of the hepatic cells, particularly a general marked fatty degeneration. The kidneys show the lesions of acute nephritis.

Action of Permanganate of Calcium Upon the Toxins of Tetanus, Diphtheria and Tuberculosis.—The subject of the internal administration of antiseptics in the treatment of bacterial infections has been discouraged because of the well-known toxic effects of the latter on the organism. J. Baudran (*Comptes Rendus*, March 27, 1905), investigated the effect of calcium permanganate on various toxins, and found that it not only destroys their chemical identity, but also inhibits their physiologic effect. In the case of tuberculin it was found that while sodium and potassium permanganate does not interfere with the action of this toxin, the calcium salt markedly destroys its toxic effects.

PRESCRIPTION HINTS.

Hyperacidity of the Stomach.—In patients who persistently complain of acidity of the stomach associated with great discomfort or real pain it becomes necessary to counteract the hyperacidity by the frequent administration of alkalies. Ewald has obtained marked success by combining with the alkalies rhubarb and sugar.

℞ Magnes. ust.
Sodii carbonat. } aa gr. lxxv
Potassi carbonat.
Pulv. rhei ..... gr. cl
Sacch. lactis ..... ʒvii

M. Sig. Take three to five grains dry on the tongue every hour.

Chronic Gastritis.—In conjunction with lavage, and with galvanism should there be excessive gastralgia, the best results in the treatment of chronic gastritis may be obtained by the administration of cannabis indica, sulphate of codeine and nux vomica, especially when given in the following combination:

℞ Codeinæ sulphat. ..... gr. iii
Extract. cannabis indicæ ..... gr. ii
Extract. nucis vomicæ ..... gr. iii

M. et ft. pil. No. xii.
Sig. Take one three times daily after meals.

Delirium Tremens.—When the patient has reached the stage of alcoholic indulgence characterized by insomnia, great excitability and inability to retain food, it is best to administer an active cathartic as

℞ Pulv. jalapæ comp. ..... gr. x
Hydrarg. chlorid. mitis ..... gr. v
Sodii bicarbonatis ..... gr. v

M. Sig. On the tongue at once.

Should the heart show weakness, the following may be given with benefit:

℞ Tinct. capsici ..... ʒiv
Tinct. digitalis ..... ʒiv
Tinct. nucis vomicæ ..... ʒii
Spiritus ammon. aromat. ..... q.s. ad. ʒiii

M. Sig. Teaspoonful in water every four hours. The extreme nervousness and insomnia will require the milder sedatives or even the hypodermic use of morphine.

For Epistaxis.—

℞ Adrenalini chloride ..... gr. ½
Acid boraci ..... gr. xlv
Aquæ cinnamonie } aa ʒx
Aquæ camphoræ }
Aquæ destillatæ ..... q.s. ad. ʒiii

M. Sig. Instil into nostrils with a dropper ..

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HEAT PROSTRATIONS.

By the medical profession nothing significant has been contributed to the knowledge of heat prostration since Bennett Dowler, of New Orleans, clinically differentiated heat exhaustion for thermic fever, H. C. Wood, of Philadelphia, formulated the pathological theory, and Ira Van Gieson, of New York, demonstrated the histological changes in the cells of the brain and spinal cord. This accumulated medical knowledge is not available, as such, for the laity, but the ignorance which in many cases is responsible for heat prostrations should be combated, and in this item, as elsewhere, the medical profession should assume its function, so often emphasized of late, as an educator of the people and an advocate of prophylaxis.

When, however, in spite of exhortations to avoid the direct rays of the sun, to eat sparingly and to bathe frequently, prostrations occur, then it becomes incumbent upon the physician to bring to the emergency trained powers of diagnosis and accurate and efficient treatment. Absolutely essential is the differential diagnosis of heat exhaustion from thermic fever, the former being due to a vasomotor palsy of central origin, and the latter to a paralysis of the heat inhibitory center. Heat exhaustion is characterized by extreme prostration, collapse, restlessness, and in severe cases, by delirium. The temperature is often subnormal On the other hand, thermic fever usually sets in during exposure, with pain in the head, dizziness, oppression, nausea and vomiting. Sudden unconsciousness often initiates the attack, and the fever is usually extreme, not infrequently running to 112° F. However, such a temperature gives no grounds for despair, since a patient, admitted to the Presbyterian Hospital in New York, in August, 1896, with a temperature of 115° F., recovered. When it is borne in mind that heat exhaustion is a condition of prostration and collapse its treatment becomes sufficiently obvious, whereas in thermic fever the primary indication is to reduce the temperature as rapidly as possible. The most efficient means of accomplishing this is by the application of cold to the surface of the body, which was used in the New York Hospital as early as 1857, with excellent results. The cold bath is the form of application usually adopted. Other indications are met symptomatically.

Aside from the danger of immediate death, the physician must keep in mind the possibility of disastrous sequelæ. The most serious of these are insanity and meningitis, and the former occurs more frequently than is commonly supposed.

THE PANAMA SITUATION.

THERE is no dearth at present of large and significant matters to fill the public mind, and none perhaps which comes home more vitally to the American people than that which concerns the so-called Canal Zone of Panama. Governmental action there has been commented on by the general press in a spirit of more or less acrid criticism. This is what might be expected, since there is undeniably room for criticism, and the government is the legitimate target for it, in view of the specific concessions of the treaty now in operation. In brief, these concessions give complete and sovereign control over a "zone of land and land under water . . . extending to a distance of five miles on each side of the center line of the route of the canal . . . with the proviso that the cities of Panama and Colon and the harbors adjacent to said cities shall not be included within this grant." Article 7, too long to quote, further provides that in the cities mentioned the United States shall have absolute control as far as is necessary of all matters pertaining to sanitation. Consequently, ultimate failure to

secure workable sanitary conditions implies either insurmountable obstacles or else unwise or unscruplous action on the part of the officials in control. The chief obstacle encountered by the French in their attempt on the isthmus was the lack of authority to enforce sanitary regulations. This hampering factor has now been eliminated, and in contemporary parlance it is "up to" the American Government.

To be sure, there are natural obstacles of no mean dimensions. The problem of creating *de novo* in a tropical climate a sanitary system covering some five hundred square miles, including a population rapidly approaching 50,000, capable of protecting not only the native population but also the large alien element necessary to the officering of such an enterprise, will tax to the utmost the most competent sanitary experts. At the time when the United States assumed control, the towns and villages along the canal line were in a state of almost inconceivable filth, and the hospitals were entirely inadequate. One of the hospitals, that at Ancon, arranged on the pavilion plan, possessed buildings in a fair condition and situated favorably upon an elevation above the city. The company's hospital at Colon needed a thorough remodeling and repairing to make it available, and at best the capacity of these institutions was seriously disproportionate to the demands likely to be made upon them.

The chief diseases prevalent in the canal zone during the past year were beriberi, dysentery, malaria, tuberculosis and yellow fever. Of these the ones toward which sanitary measures must be directly aimed are malaria and yellow fever, for it is these that the alien is most likely to contract. The presence of yellow fever on the isthmus, though serious, has not become alarming, according to official reports, but the general prevalence of malaria is shown by the fact that microscopic examination of the blood of 669 individuals, selected indiscriminately, revealed in 340 the presence of some type of malarial parasite. From these investigations it is fair to conclude that approximately 60 per cent. of the population are thus infected. This statement assumes an added seriousness that we note that in the vast majority of cases, where the type of organism was definitely classified, it was found to be the æstivo-autumnal.

The two cities, Panama and Colon, included in the Canal Zone were found to be in imperative need of proper sewage system, and in the case of the latter a great difficulty is presented by its location. This city is built on a flat, sandy island, no part of which is more than a few feet above mean sea level. Some years ago the Panama Railroad Company built a small reservoir about two and one-half miles from the city, which supplies water "of an indifferent character" to the official quarter of Colon, the remainder of the population being limited to such rainwater as is collected from the roofs of the buildings. The difficulties of sewage disposal under such conditions are obvious.

In the face of these obstacles something, nevertheless, has already been accomplished. The hospitals referred to have been repaired and modernized, and another in Colon, hitherto under the control of the Panama Railroad Company, has been acquired. A large convalescent home for canal employees is also being equipped on an island in the Bay of Panama. Furthermore, in a recent interview, Mr. Shonts makes the following statement:

"Water has already been introduced in the city of Panama from spring-fed lakes. Panama has been sewered, the houses are being fitted with modern plumbing, and we have ordered I don't know how many millions of vitrified brick for paving. Colon will soon have its water supply from the mountains, and it will undergo the same process. Every house is to be fumigated and everything that human science can do will be done to stamp out the yellow fever. Oil has been spread over all the pools and swamps to kill the mosquitoes, the old seaweed has been torn up and thrown in the sun. In a dozen different directions the activities of the health officials are being exerted."

In view of the obstacles encountered and the comparatively short time which has elapsed, this would seem no trivial record. Dr. W. C. Gorgas, Colonel U. S. A., Chief Sanitary Officer, took up the task with a full realization of its difficulties. He himself said: "We shall, no doubt, meet with many disappointments and discouragements, and shall succeed in the end only after many modifications of our plans and after many local failures." Such an attitude presages better for the success of the undertaking than a more confident and less comprehending one. Dr. Gorgas has a right to speak with authority in such matters, for his accomplishment of the sanitation of Havana is still fresh in the public mind.

Naturally the methods so successful in Cuba are the ones to be applied here, and although the climatic and geographic factors are less calculable

it requires no very strenuous optimism to predict the ultimate success of these measures, namely, a systematic cleaning up of the terrain, an equally systematic destruction of the *Stegomyia fasciata* and *Anopheles,* together with their breeding places, and the treatment under screening of all infected or suspected cases.

The lax enforcement of quarantine regulations at the ports has also been replaced by a rigorous system of inspection, to the end that infectious diseases may not be introduced from abroad.

Another factor which might be classed as a natural obstacle, and one with which Dr. Gorgas had full experience in Cuba, consists of the distrust manifested by the native population toward hospital treatment and prophylactic measures. The overcoming of this distrust was one of the notable achievements of Dr. Gorgas's success in Cuba, and it is gratifying to note that a campaign of education, directed toward securing the coöperation of the native population of the Isthmus, bids fair to be promptly effective. "General faith in Dr. Gorgas," said one of the employees, "is the only thing that keeps any of us on the Isthmus."

Yet at the present moment, in spite of the precautions thus far taken, reports from the isthmus are none too encouraging. Even after allowance has been made for panic and natural exaggeration it must nevertheless be admitted that yellow fever is still endemic, and that the mortality and sickness have increased. The isthmus is not yet a safe and healthy dwelling place for either the native population or the immigrant. Yet until such a condition is attained, the vast engineering scheme upon which the government has embarked must remain in abeyance. As the chairman of the committee justly remarks: "Our first duty is to create sound underlying conditions. This is now vastly more important than the moving of dirt."

That President Roosevelt strongly concurs in this view of the situation is shown by his remarks before the Associated Physicians of Long Island on July 12, at Oyster Bay. He, too, recognizes the difficulties. Among other things he said:

"Now, of course, in doing a great work like that in the tropics, in a region which, until this Government took hold of it, was accounted to be a region exceptionally unhealthy, we are going to have trouble, have some yellow fever, have a good deal of malaria fever, and suffer more from the latter than from the yellow fever, although we will hear nothing like the talk about it. What is being done in Panama is but a sample of the things that this country has done during the last few years, of the things in which your profession has been so prominent a part. Take what we did in Cuba, where we tried the experiment which had not been tried for four hundred years, of cleaning the cities. One of the most important items of the work done by our Government in Cuba was the work of hygiene. This country has never done better work, that is, work that reflected more honor upon the country, or for humanity at large."

Mr. Roosevelt further emphasizes, as does Mr. Shonts, the fact that the gloomy reports brought back from the isthmus emanate either from persons who should never have gone there at all, or from those who were not assigned to proper work on their arrival.

The general public, with characteristic impatience for results, betrays a slight inclination to become disheartened over the Panama situation. Yet a fair and reasonable estimate permits a forecast far from gloomy. If the authorities, concurring with Mr. Shonts, that sanitation must precede excavation, give Dr. Gorgas a free hand to push the work in this direction as speedily and thoroughly as possible, and if only those set out for the isthmus who know where they are going and what they are going for, who possess a mental equilibrium proof against panic and a physique reasonably capable of withstanding the environment, then the construction of the Panama Canal may proceed to completion without any appalling sacrifice of human life.

In short, the proper view of the situation preserves a balance between irresponsible optimism and premature pessimism, the sane, clear-sighted attitude which estimates the difficulties at their proper magnitude, calculates adequate measures for their removal and makes haste slowly toward the desired goal.

THE EXUDATIVE DIATHESIS.

THERE is a manifest tendency, on the part of modern clinicians, to reject certain morbid conditions as distinct pathological entities, and to include them under larger groups, as mere variations of the same fundamental process. To the larger groups the term diathesis is applied, and to the already numerous list of diatheses, a new one has been added. Professor A. Czerny (*Jahrbuch f. Kinderheil.,* January 2, 1905); whose opportunities for observation in the children's ward of Breslau are unexcelled, is the author of this new expression, the "exudative diathesis." This

term connotes no new disease, but is meant to include a large number of conditions that are observed among young children, which, while individually they are apparently trifling, are nevertheless the cause of considerable anxiety to the pediatrist.

These conditions have been hitherto classified under the rather indefinite "scrofula" of the older writers. One hears very little of this disease nowadays, for many of the cases which have formerly been diagnosed as scrofula are now recognized as tuberculosis, in its myriad forms. Yet not all cases of scrofula are tuberculosis. There is still a good deal of difference of opinion as to the proper boundary-line between the two diseases. In order to avoid the confusion attending the use of the older word, Czerny rejects the term scrofula and applies to many of the cases that have been included under it, the expression, "the exudative diathesis."

This condition rests upon a marked hereditary basis. In most cases, however, the parents do not recall or are ignorant of the fact that they themselves had evidences of this constitutional disorder during childhood or infancy. In the same family different children may show widely diverse manifestations of this affection, which may, in fact, express itself in a multitude of ways.

Among these manifestations the most common is the so-called "geographical tongue." This is really an exudation into the mucous membrane covering the latter organ, which may disappear and reappear haphazard on various parts of the tongue. Another common symptom is the seborrhea of the scalp in infants, which primarily is simply an exudation beneath the skin, but owing to irritation is frequently converted into an eczema. Of similar nature is strophulus, which is usually found upon the cheeks, principally in fat infants, and is often the forerunner of facial eczema.

The above cutaneous lesions may be compared to the exanthem of infectious diseases, and like them have frequently associated with them an exanthem, or eruption on the mucous membranes. These epithelial lesions are exceedingly prone to irritation and consequent infection and accordingly one sees commonly a tumefaction of the cervical lymph-nodes. This explains the enlarged glands of the already obsolete scrofula. These, together with the above sources of infection, may become the portal of entry for tuberculosis. Hence one can understand the confusion of the older writers in confounding tuberculosis with scrofula, and characterizing both as primary diseases, whereas they are really secondary to the exudative diathesis.

The geographical tongue, seborrhea of the scalp, and strophulus are seen in infants less than one year of age. Older children display, as a rule, quite different expressions of the exudative diathesis. In them are found a tendency to repeated attacks of follicular tonsillitis, which, recurring at regular intervals, cannot be attributed to mere exposure, but must be assigned to some constitutional dyscrasia. In many of these children are found hypertrophy of the lymphoid follicles of the nasopharynx, and in some of them occur periodical attacks of croup.

The frequency of secondary complications that occur in the course of the exudative diathesis, such as enlarged glands, tuberculosis, etc., renders the subject of treatment of this condition of extreme importance. One should avoid a diet that has a tendency to make the child too fat. The country-air has a favorable effect on the disease, while the city-air, with the accompanying crowding and ill-ventilation, favors its development.

ECHOES AND NEWS.

NEW YORK.

Ambulance Accidents.—Three accidents to ambulances, besides one runaway, which fortunately did no damage, is the record of the past week.

Rich Gift to Hospitals.—The will of Margaret A. Jones, filed for probate July 15, divides her residuary estate, which will probably be more than $900,000, in equal shares among St. Luke's, the Presbyterian and the Post-Graduate hospitals of this city. The principal of the share going to St. Luke's is to be known as the Margaret Jones fund, in memory of Miss Jones's mother. That going to the Presbyterian will be known as the Margaret A. Jones fund, and the Post-Graduate devise will form the David Jones fund, in memory of Miss Jones's brother. The incomes of these funds are to be used in providing free beds.

Ship Had One Plague Case.—Capt. Williams, of the British steamship Indrani, which arrived July 17 from China and Japan, reported to Health Officer Doty, at Quarantine, that a month ago, at Suez, one of the ship's crew, a Lascar, was taken ashore ill apparently of bubonic plague. On Saturday, about forty miles off this port, another Lascar died and was buried at sea. The captain said this man did not have the plague. Dr. Doty made a careful examination of the crew of forty-eight men, all Chinese and Lascars, and found that none was ill. As a precautionary measure, however, he decided to send all hands to Hoffman Island for observation.

"Beauty Doctor" Arrested.—Dr. Andrew L. Nelden, of 13 East Twenty-ninth Street, who maintains an "Institute and Sanitarium for Plastic Featural Surgery," was arrested last week on the charge of

obtaining money under false pretenses. The complainant was Mrs. Josephine Ware, of Denver, Colo., who charges that he contracted to smooth out wrinkles on her face and forehead, and after more than six weeks' treatment left her face badly scarred. Three other out-of-town women have made complaints to the District Attorney's office that they were similarly treated. Three women and a man, all patients, were found in Dr. Nelden's house when he was arrested. Innumerable letters were found at the "Institute" complaining of the results of his treatment. He is the same man who made such a successful bid for notoriety a few years ago by advertising for an ear, claiming he wanted to graft it upon a patient.

Enlarging Ellis Island.—Work was begun July 20 on the first crib for the outer retaining wall of the Ellis Island extension, which the Department of Commerce and Labor is making for a hospital site for contagious diseases among immigrants arriving at this port. At present all contagious cases among immigrants landing at Ellis Island are cared for by the New York Health Department at North Brother Island, under a contract with the Federal authorities. Over a year ago Health Commissioner Lederle notified Immigration Commissioner Williams that this contract would have to be abrogated, because the city had not the facilities for handling the large number of cases sent from Ellis Island, in addition to its own cases. The extension, for which the Government appropriated $100,000, is to be an island 800 feet long, 250 feet wide, with a basin 250 feet wide and 1,100 feet long, between it and the present hospital island. The contractors have 250 days in which to complete the work.

Trachoma Among Immigrants.—Since the first of June there has been a marked increase in the number of cases of trachoma among the immigrants arriving at Ellis Island. As a result not only a majority of the patients in the hospital at the island are held there because of this disease, but about one-third of those who are cared for, among the overthrow in the Long Island Hospital, are trachoma cases. Dr. Stoner, chief of the Marine Hospital Corps on Ellis Island, who has just returned from a tour of inspection along the Canadian border, visited the Long Island Hospital to inspect the immigration cases there. Speaking of the increase of trachoma during the past two months, he said: "It looks to me as though they had been held up on the other side until they secured a favorable opportunity to rush them into this country, and than all were shipped over in a bunch. Most of the cases we have held up during June and the early part of this month are from Mediterranean ports, and, as some of the ships were overdue in arriving here, it happened that we got an unusually large number of people from that section in groups. Invariably there were many trachoma cases, and the fact that they came in this way makes me think there was a concerted movement to work them into the country."

Superintendent of Bellevue.—As we anticipated in our last issue, the trustees of Bellevue and Allied Hospitals on July 13 appointed Dr. Samuel T. Armstrong, medical director of the Washington Life Insurance Company, superintendent of the city hospitals. Dr. Armstrong, although second on the civil service list for the place, was the choice of Dr. John W. Brannan, the president of the Board of Trustees. Dr. Armstrong has had a great deal of experience in the construction of hospitals in Cuba and the Philippines, having served as a surgeon in the army and in the United States Marine Hospital Corps. The trustees think his experience in that line will be of particular value in the construction of the new Bellevue Hospital, the bids for which have already been received. Dr. Armstrong was born in St. Louis forty-five years ago and received degrees from the St. Louis Medical College and the St. Louis University. After ten years' service in the Marine Hospital Corps he came to New York, in 1890, and was made visiting surgeon to the Harlem and Willard Parker hospitals. At the outbreak of the Spanish-American war he entered the army as Surgeon-Major. He resigned in 1901. Work on the new Bellevue Hospital will be commenced as soon as the trustees receive an opinion from the Corporation Counsel on their right to accept alternative bids; that is, bids wherein materials are substituted other than those provided for in the specifications.

City Consumptive Hospital.—Health Commissioner Darlington has obtained from the Board of Estimate an appropriation of $250,000 for the establishment of a tuberculosis sanitarium at Mount Hope, in Orange County, N. Y. As a result of his investigations he recommended to the Board of Estimate the purchase of 1,200 acres on the summit of Shawangunk Mountain. The site is about seventy-seven miles from this city and twenty-five miles from the Hudson River, back of West Point. It is 1,250 feet above the sea level. Dr. Darlington informed the board that he had succeeded in obtaining the necessary consents for the use of the place as a sanitarium for consumptives, and, upon hearing that, the appropriation was at once granted. The land is now occupied by farmhouses and cottages, and it is the intention of Dr. Darlington to use these for the accommodation of patients immediately without waiting for the building of the large hospital and cottages. With the houses which will be at his disposal at once Dr. Darlington said yesterday that he could take care of at least 400 patients. It is his intention to treat only incipient cases of tuberculosis. The Commissioner explained that there are in this city something like 25,000 consumptives, and that in order to help these sufferers it would be the object of the sanitarium to spread information as to the habits and treatment of persons afflicted with the disease should follow.

PHILADELPHIA.

Dies of Sea-Sickness.—An immigrant girl from Hungary, who just landed in this country, died in the Altoona Hospital, of sea-sickness. Soon after the steamer sailed she became ill and grew steadily worse. When she landed at Ellis Island the girl was not able to stand.

Hospital Crowded.—The Jefferson Hospital is so crowded that no new cases can be taken in at the present time. Emergency cases will be treated and then transferred to other institutions. The repairs which are being made in the medical and children's wards are largely responsible for the crowded condition.

Sanitarium for Consumptives Must be Abandoned.—Because of the petition of complaint filed by the residents of Mt. Airy against the establishment of a sanitarium for tuberculous patients in that neighborhood, Judge Beitler made a personal investigation of the neighborhood. He decided that the institution could not remain upon that plot of ground, since there is a clause in the deed which prevents the establishment of saloons, factories, or anything that may affect the health and comfort of the neighbor-

hood. The Judge said that he was convinced Miss O'Hara is doing her best to make the institution as little annoyance to the neighbors as possible.

Medical Inspectors Make House-to-House Visits.—Director Martin, of the Department of Health, has detailed the entire corps of assistant medical inspectors to visit the homes of the poor and to give the mothers instruction as to the care of infants during the warm weather. When a child needing medical treatment is found it is reported to a ward out-door physician of the Bureau of Health. In order to avoid an outbreak of smallpox the inspector will determine whether or not the persons visited should be vaccinated. In the event that they refuse such an operation their employer will be notified that such persons are a menace to the health of his employees. Their discharge will be requested.

CHICAGO.

Fresh Air Tent House for Children.—The Chicago Relief and Aid Society is making a new experiment in charitable endeavor, by establishing fresh air stations for sick babies in the poorest and most densely populated sections of the city. A small structure of wood and canvas has been built and appropriately termed a "tent house," on the grounds of the Northwestern University Settlement. The Visiting Nurses' Association has volunteered to supply a corps of nurses to attend the little ones, and several hospital physicians have given their services, so that the best of care is guaranteed the inmates. Sterilized milk is furnished by the Children's Hospital Society, and the officers of the University Settlement have given the use of the kindergarten bathrooms, and another large, airy room that is to be used to accommodate the babies for whom there is not enough space in the tent house. If the plan proves successful it is the intention to establish a large number of similar institutions through the congested districts.

City Water Supply.—Since the excessive precipitation of May (5.14 inches, as against the thirty-odd years' May average of 3.75 inches) there has been a marked depreciation of the sanitary quality of the public water supply. During April the supplies from all sources averaged 88.4 per cent "safe;" in May the average was 56.9, and in June only 53.3 per cent. "safe." The effects are seen in an 88 per cent. increase of the deaths from the acute intestinal diseases—contributed to largely by the increasing temperature. During the first fifteen days of July the average of the supplies from all sources has improved to 78.8 per cent. "safe." That from the Ashland Avenue pumping station—although supplied from the same intake as the Chicago Avenue and the Harrison Street stations—continues unaccountably bad. It has averaged only 18.2 per cent. "safe," while that from the other two stations on the same supply lines has averaged 81.8 per cent. "safe." Investigation by the City Engineer is being made for what is, undoubtedly, some local cause for this pollution.

Fourth of July in Chicago.—Notwithstanding the strenuous efforts of the medical profession and of the press, both lay and professional, Four-of-July casualties continue to increase year by year. As tabulated July 6 of last year they numbered 2,431 for the whole country. On the same date this year 3,160 had been reported—an increase of 30 per cent. Of these totals there were 103 in Chicago last year and 132 this year—substantially the same proportion of the total in each year. Up to July 15 of each year there had been 100 deaths from these accidents in 1904 and 92 in 1905. The death-rate last year was, therefore, 4.1 per cent;. this year it was only 2.9 per cent. Had the death-rate of 1904 obtained this year there would have been 129 deaths among the 3,169 casualties, instead of 92. This reduction of nearly 30 per cent. in the death-rate is to be attributed solely to the improved treatment of this class of wounds, advocated persistently by the department for many years. It is, however, not at all flattering to civic nor to professional pride to note that—while the death-rate of all cases in 1904 was 4.1 per cent. the rate of the Chicago cases in that year was 10.7 per cent.; this year the respective rates are 2.9 per cent. of all cases and 9.9 per cent. of Chicago cases. Obviously, there is urgent need of further efforts in this city.

GENERAL.

Appointment of Dr. Ray.—Dr. Wyeth E. Ray, Yale Medical School, '98, has been appointed Associate Medical Director of the Travelers' Insurance Company, of Hartford, Conn.

Appointment of Dr. Ohlmacher.—Dr. A. P. Ohlmacher has been appointed Director of the Biologic Laboratories of Frederick Stearns & Co., of Detroit, Mich., and has entered upon the active duties of the position.

Smallpox Kills 3,279.—The statistics of the smallpox in Valparaiso, Chili, from January 1 up to the 10th of the present month show 3,279 deaths. A report dated July 15 says during the last forty-eight hours 104 new cases have been reported. Twenty-two bodies were picked up in the streets yesterday. Typhus fever and chickenpox have broken out in Santiago, assuming epidemic proportions.

A Doctor in Cabinet.—The American Medical Association, in convention at Portland, Ore., adopted a resolution offered by Dr. Liston H. Montgomery, of Chicago, advocating the creation of a new Cabinet place, to be known as the Department of Public Health, the secretary of which is to rank with other Cabinet officers. The resolution calls for more stringent laws for the prevention of diseases, and urges Congressional action.

International Medical Congress.—The next International Medical Congress will be held in Lisbon, April 19 to 26, 1906. It is expected that it will be one of unusual importance, for a meeting which will be held in what has always been considered as an out of the way country. Already the titles of papers from some of the most distinguished men of the medical profession have been received. Many interesting topics for discussion have been selected by the executive committee.

Dr. Burnham to Head Consumption Hospital.—The Board of Managers of the New York State Hospital for the Treatment of Incipient Tuberculosis has appointed Dr. Melvin Page Burnham, of New York City, acting superintendent, to succeed Dr. J. H. Pryor, resigned. Dr. Burnham has been for three years resident physician of Seton Hospital at Spuyten Duyvil, a tuberculosis sanatorium of 300 beds. He is highly recommended by New York experts.

Changes in the Pharmacopœia.—In the new United States Pharmacopœia the following changes are noted: The strength of tincture of aconite has been reduced from 35 per cent. to 10 per cent., and that of tincture of veratrum from 40 per cent. to 10 per cent. The strength of tincture of strophanthus has been increased from 5 per cent. to 10 per cent. These changes officially go into effect on September 1, 1905.

New Hospital for Brooklyn.—Charities Commissioner Tully has purchased a piece of property in Dumont Avenue, between Bradford Street and Miller Avenue, in the East New York district, Brooklyn, as the site for the new hospital which is to take the place of the Bradford Street Hospital. The building will have a frontage of 200 feet on Dumont Avenue and a depth of 280 feet. It is Mr. Tully's intention to build only a small structure at first, at a cost of $60,000, so designed as to permit the erection of wings later on.

Death Total on Railroads.—Accident Bulletin No. 15, just issued by the Inter-State Commerce Commission, giving an account of railroad accidents in the United States in January, February, and March, 1905, shows that in that period 28 passengers and 204 employees were killed and 1,651 passengers and 2,062 employees hurt in train accidents. Other accidents to passengers and employees, not the result of collisions or derailments, bring the total number of casualities to 909 killed and 14,397 injured. The total number of accidents was 1,787 collisions and 1,321 derailments. The damage to cars, engines, and roadway by these accidents amounted to $2,449,248.

Queen's New Red Cross Society.—The King and Queen lately inaugurated the formation of a new Red Cross Society, to cooperate with all existing societies in succoring the sick and wounded in time of war. The council appointed the Queen president and Lord Rothschild chairman. At a meeting at Buckingham Palace the Queen made a speech, briefly outlining the objects of the society. In conclusion she said: "I now appeal to all the women of the empire to assist me in carrying out the great scheme, which is essentially the work of women, and which is the one only way in which we can assist our brave and gallant army and navy to perform their arduous duties in time of war."

Next Meeting of the American Medical Association.—The next meeting of the American Medical Association will be held in Boston. The following officers have been elected: President, Wm. J. Mayo, Rochester, Minn.; Vice-Presidents, First, Walter Wyman, Surgeon General; Second, K. A. J. Mackenzie, Portland, Oregon; Third, Edmond D. Martin, New Orleans; Fourth, Eugene S. Talbot, Chicago; General Secretary, George H. Simmons. Medical oration, Frederick G. Shattuck, Boston; surgical oration, Joseph D. Bryant, New York. Board of Trustees (for three years), E. E. Montgomery, of Pennsylvania; H. L. E. Johnson, of the District of Columbia, and A. L. Wright, of Iowa.

Typhoid Fever of Hamlet.—The little hamlet of Collinsburg, about twenty-five miles from Pittsburg, Pa., is undergoing a scourge of typhoid fever, and conditions are of the most distressing character. There are only about thirty houses in the place, and there is not one of them in which at least one case of the fever cannot be found. In some of the homes there are as high as five cases. One man, named Litt, has lost five of his children since the epidemic started, and other families have lost three and four members. Physicians have labored faithfully, but they appear unable to abate the plague or lessen the fatal results of the attacks. Between death and fright the place bids fair to become depopulated. The cause of the epidemic is supposed to be a foul water supply, together with unsanitary conditions.

Day Sanatorium.—A day sanatorium for the treatment of tuberculous patients has been opened on Parker Hill, in Roxbury, Mass. Those needing treatment are driven to the sanatorium and are permitted to spend the day there. This plan will be followed as late as October, if all things permit and sufficient money can be raised from friends outside. Steamer chairs of canvas and others allowing a more upright position were placed under the trees in a most inviting way. Beyond, was the "rest tent," showing couches for those who feel the need of sleep or protection from the weather. During the morning each patient was examined as to pulse and temperature. This will be done every day; weights will be taken twice a week and more thorough examinations made at the end of every month in order that records of each case may be complete. There is a possibility that this section may be too high for some of the patients, but as all are in what is called the "hopeful stage," it is believed that they will all be benefited. There will be practically no medical treatment, although there is every provision for emergencies. Dr. David Townsend, of Brookline, has the general medical supervision of the whole undertaking, with Dr. F. R. Tower on duty during July and Dr. G. W. Hall through August. Dr. E. O. Otis, a recognized authority on treatment for tuberculosis; Dr. Frederick Knight and Dr. H. C. Clapp are the consulting physicians. Mrs. Mary Kehew, Mrs. C. A. Cummings, Rev. P. R. Frothingham, T. M. Clark and G. S. Mumford are among those who are actively interested in the success of this most important undertaking The grounds of the sanatorium were arranged by A. M. Wilson, the secretary of the association, and Mr. Clark.

Home Sanatorium.—A tuberculosis class, or home sanatorium, will be established under the auspices of Emmanuel Church of Boston, consisting probably of not more than fifty members. It is important that the number of patients should be limited in order that the careful supervision so necessary to success may be secured. The object of this plan is to carry out the sanatorium methods in the homes of the patients. Dr. Charles L. Minor, of Asheville, has shown that the hygienic regimen may be employed with success outside of a sanatorium if sufficiently detailed instructions are given and strict discipline maintained. His work has been among the well-to-do educated classes. We believe that equally good results can be obtained in the homes of the intelligent poor. It is known that too great value has been attributed to climate in the treatment of tuberculosis. As has been well said care without climate is more important than climate without care. It is far better to provide the poor consumptives in this locality with facilities for leading an out of door life and with nutritious food than to send them away to a more favored climate, where, however, healthful surroundings, good food and proper medical attention are beyond their slender means. Our work will not duplicate that of existing organizations. It is a supplement, not a substitute, for the tuberculosis dispensary, and is intended for those who are unable to receive the benefit of treatment in the State sanatorium. The essential features in the sanatorium treatment are: (1) Facilities for living an out of door life in all sorts of weather; (2) good food; (3) careful regulation of the details of daily life. The necessary supervision will be maintained by (*a*) frequent visits of the nurse, and occasional visits of the physician; (*b*) weekly meetings in the examining room of the class; (*c*) the individual record book in which each patient will enter the essential details of the day, *e.g.*, the number of hours of rest, the amount of exercise, the diet, and if necessary the temperature. It is essential that each patient should have facilities for living and sleeping out of doors. These may be secured by moving to the upper floor

of an apartment or tenement with a flat roof, so that the patient can live on the roof. The full amount of available sunshine will thus be secured and an atmosphere relatively free from dust. Many of the newer tenement and apartment houses have flat roofs. Some families may prefer moving to the less crowded suburban district where it will be possible to live on a veranda or in a tent. The patients will be aided in providing themselves with bed-tents, shelters from winds, reclining chairs and the proper wraps and coverings, in order that the outdoor life may be comfortable in all sorts of weather. A carpenter will be specially trained to make balconies and tents of the most approved design and these will be provided at the lowest possible cost. Instruction in the nature of the disease and the prevention of its spread will be given. Those in charge of the patient's food will be taught its proper preparation and in special cases, milk, butter, oil and eggs will be furnished. The class will be under the direct supervision and management of Drs. Joseph H. Pratt and John B. Hawes.

A. M. A. Echoes.—Dr. George H. Simmons, the secretary, submitted a concise report containing much interesting information. The establishment of the card index system, biographical in character, was described as being carried forward through the assistance and with the cooperation of medical colleges and secretaries of State licensing boards. The membership on the date of the last report, June, 1904, was 15,334. During the year there have been added 4,889, and 938 have been dropped, 162 on account of death, 176 not eligible, 36 for non-payment of dues, 535 resigned, and 29 were not found, leaving a net gain of 3,951. This makes the total membership on June 1, 1905, 19,285. It is estimated that there are about 17,000 subscribers not members.

From the special committee on National incorporation was received an exhaustive report reviewing the efforts to secure through an act of Congress incorporation of the American Medical Association, the recommendation of which was contained in this brief resolution recommended for adoption: "Resolved, that the efforts to secure National incorporation of the American Medical Association be and hereby are continued, and that the labors relating thereto become a part of the duty of the Committee on National Legislation, and that these duties be no longer referred to a special committee appointed for that purpose."

Secretary Simmons read a recommendation by which contract doctors in the United States Army should be placed on a ranking list, rather than spend their time "avoiding slights." By the same token the dental corps was also recommended for receiving a certain rank.

Reports were received from the committees on the Rush monument and the Walter Reed memorial fund, the former announcing completion of its work, the unveiling of the monument, and begging to be discharged, and the second reporting the sum of $18,065.75 subscribed and all except $1,871 paid, and asking to be continued for at least another year.

Whether the American Medical Association should publish a medical directory, and, if so, whose names it should contain, was a topic of discussion before the house of delegates. The matter was finally left to the Board of Trustees, and that organization had already come out advocating a directory giving the names of all practitioners licensed by the States. When the directory is published it will be composed of all the licensed doctors, with the members of the Medical Association in black-faced type, to herd the sheep from the goats, as they themselves expressed it.

Eloquent, scholarly and impressive was the memorial address delivered by Dr. Henry O. Marcy, of Boston, on the late Dr. Nathan Smith Davis. The speaker paid tribute to the life work and character of the founder of the Association. He reviewed carefully the early biography of his subject, born in 1817, in New York State, his youth passed on a farm, and received an education in the public schools, for a short period in the seminary at Cazenovia, and at the age of twenty graduated from the College of Physicians and Surgeons of the Western District of New York. He began practice in Binghamton, later removed to New York City, and was the founder of the American Medical Association, being the founder and editor of various of the leading medical journals. In 1849 he transferred to the Rush Medical College, at Chicago, and from that time identified himself actively, not only with teaching, but with almost every sanitary, scientific and educational interest of the city. In 1859 he became the active head of what is now known as Chicago Medical College.

OBITUARY.

Dr. Edward S. Wood, Professor of Chemistry in Harvard Medical School, died at his summer home in Pocasset, Mass., on July 11, from cancer of the intestines. He was one of the most famous chemists in America and an authority on analysis of human blood He was an expert witness in many murder cases in which the identity of blood stains figured, including the Blindin, Mate Bram and Tucker trials.

Dr. William Armisted Moalt, a member of one of the oldest families of Maryland, died at the Johns Hopkins Hospital, on July 12, after an operation for appendicitis. Dr. Moalt was a descendant of Ellen North, the first white child born in Maryland. He wrote several books on medical subjects. He had large business interests in the management of his estate and the holdings in this city of his sisters, Mrs. I. Townsend Burden and Mrs. Robert I. Cutting, of New York.

Dr. Clado, a Greek physician long resident in Paris and a Chevalier of the Legion of Honor, died July 10, as a victim of duty. He returned late at night from Chantilly a few days before, where he had accompanied the Crown Prince of Greece on an automobile trip, and went to a hospital and performed an operation on a poor workman because he conscientiously refused to postpone the operation till the next day. During the operation he slightly pricked his finger. Blood poisoning developed a few days ago, and in spite of the best medical attention the case proved fatal.

Dr. A. Palmer Dudley, of New York, Professor of Gynecology in the Post-Graduate Hospital, the Harlem Hospital and the Medical School of Vermont University, died July 15, in Liverpool, England, while on his way to attend the International Medical Congress at St. Petersburg, to which he had been appointed a delegate from the United States. Dr. Dudley was born in Phippsburg, Me., in 1853, and received his medical education at Dartmouth Medical School. He was attending surgeon at the Harlem Hospital and the Randall's Island Hospital, as well as Professor at the Post-Graduate. He was a member of many medical societies and the author of various professional articles. The body will be brought back to Phippsburg for burial. Dr. Dudley had obtained passage on the Oceanic for July 5. A few days before the date of sailing he showed symptoms of pulmonary tuberculosis.

SOCIETY PROCEEDINGS.

THE AMERICAN MEDICAL ASSOCIATION.

Fifty-sixth Annual Meeting, held at Portland, Oregon, July 11, 12, 13 and 14, 1905.

FIRST DAY—JULY 11TH.

GENERAL SESSION.

The meeting was formerly opened by prayer by Rev. A. A. Morrison, of Portland. The retiring President, Dr. Musser, then introduced Judge Meloin George, of the Supreme Court of Oregon, who represented the Governor in welcoming the visiting physicians to the State. Judge George said that in California they had elected a physician Governor and that there were many physicians in Oregon who should be Governor. He invited the visitors to stay for good in the glorious climate and the wonderful prosperity of Oregon which its citizens were too modest to try to keep to themselves.

Dr. Harry Lane, the Mayor of Portland, himself a physician, then added his welcome to the city. He told the story of efforts to improve the moral and hygienic conditions of Portland for the Exposition time and assured the doctors that they should be the welcome guests of the city and its citizens.

On behalf of the Oregon State Medical Society, its President, Dr. George F. Wilson, bade the visiting physicians welcome and hoped that they would appreciate the Exposition and the expansion of the State as well as transact their business and share in all the social functions.

Dr. Henry W. Coe, the President of the City and County Medical Society of Portland, then stated some of the reasons why the physicians should feel themselves welcome in the metropolis of the Northwest. When it was announced that the American Medical Association had resolved to come to Portland for their annual meeting, it was stated that at least $20,000 must be raised to provide proper arrangements for the meeting. Portland is not a large city, nor is it blest with many very wealthy men, but there was a prompt response to the call for funds. Three thousand dollars was subscribed by six physicians at the first meeting. When the inhabitants of the city were told that an effort was making to secure the meeting of the most important scientific body of this country, or perhaps of the world, the response was prompt. Before the opening of the session $23,000 was in bank to defray the expenses.

Dr. Mackenzie then announced the social features of the meeting: The reception at the American Inn on the Exposition grounds on Tuesday evening. The reception at private houses as well as that to Dr. McMurtry, the President of the American Medical Association, on Wednesday evening in the Oregon Building, and the trip down the river on Thursday. The reception at "The Oaks," given on Thursday evening by the Portland City and County Medical Society, assisted by the District and State Medical Societies. Finally the trip arranged for members to Alaska, to be taken just after the close of the meeting; as well as the Friday morning trip up the Columbia River.

Dr. Musser then presented Dr. Lewis S. McMurtry, of Louisville, Ky., the President-elect of last year, who delivered the President's annual address (See page 97).

SECTION ON PRACTICE OF MEDICINE.

FIRST DAY—JULY 11TH.

The Chairman of the Section, Dr. Richard C. Cabot, of Boston, in the chair.

The scientific business of the session began with the reading of a paper on "The Incidence of Heart Disease in San Francisco," by Wm. Fitch Cheney, of California.

Statistics of Heart Disease.—Dr. Cheney analyzed 135 cases of heart disease that had been under observation in an out-patient clinic. By far the most frequent lesion seen was that of the mitral valves causing insufficiency. After this came aortic insufficiency and then mitral stenosis in some nine cases. Only patients above twelve years of age were received at the clinic, or it seems not unlikely that increase of uncomplicated mitral disease would have been seen. Most of the patients under observation were under twenty years of age and all were under thirty years. It is particularly in early life that acute articular rheumatism and other infectious diseases cause mitral thickening with stenosis. Most of the aortic disease was seen in those suffering from arterial disease, and Dr. Cheney called attention to the fact that aneurisms of the aorta are especially common in San Francisco.

Etiology.—In valvular disease the most common cause was evidently rheumatism. This was not a common factor in myocarditis, however. Most of the cases had suffered from recurring attacks of rheumatism and some were in the midst of a relapse into rheumatism when they came under observation. Race and sex seem to have an influence in predisposing to heart disease only inasmuch as they influence the habits of the individual. Three-fourths of the patients were foreigners, but these are the hard workers who, besides neglect hygiene and overindulgence in alcohol and tobacco. Very few hard workers who are careless in their habits escape aortic disease. Less than one-third of the cases occurred in women, showing the influence of their quieter lives. The particular occupation seemed to bring with it liability to heart disease, though hard work is an important factor.

Septic Arthritis and Vulvulitis.—Dr. Op[illegible]ls, of California, in the discussion, said of Dr. Cheney's paper, that in making the autopsies on some of these cases the most prominent feature was the frequency of septic conditions. Some of the valve lesions were of distinctly ulcerative character, though the clinical diagnosis had been rheumatism. It seems probable that many cases in which endocardial complications occur that have been called rehumatism are really of septic origin. True, simple articular rheumatism, simple arthritis, may run its course without the occurrence of bacteria in the joints and consequently without danger of heart complication.

True and False Rheumatism.—Dr. James J. Walsh, of New York, said that no movement in medicine at the present time is more interesting than the separation of so-called rheumatism into its constituent diseases. The best sign that true rheumatism has been present is that it leaves no mark in the joints. When the joints are permanently injured then either the disease was not simple rheumatic arthritis or it was complicated by some accessory bacterial infection. Septic arthritis is undoubtedly much commoner than has been thought. Gonorrheal rheumatism is quite frequent. The heart valves are really joints in the tissues, covered with serous membrane, to prevent function and adhesion. We should not expect them to suffer permanently from true rheumatism any more than the joints. Where endocarditis occurs there must be the suspicion of a complication in the case. Rheumatism, as now used in medicine, is a multiplex term covering many different affections, of which any simple arthritis really deserves the name. Proper limitation will bring progress in diagnosis, and improved methods of differentiation will lend further precision to our efforts

Hard Work and Aortic Disease.—Dr. Grandee, of Norfolk, Virginia, said that many of the negroes who work about the docks at Norfolk suffer from heart disease. They are not especially liable to rheumatism but, on the contrary, suffer from the disease rather infrequently. Many complain of the vague pains commonly called chronic rheumatism, but have no history of an acute febrile disorder with swollen joints. Their pains are nervous in character or are myalgic. They are all truckers, that is men who do heavy lifting around the docks, and their heart disease is evidently due to the strain put upon the valves. It is rather of traumatic origin than the result of spreading arteriosclerosis.

Secret Nostrums.—Dr. Frank Billings, of Illinois, called attention to the large number of secret nostrums, copyrighted preparations, that are advertised in the medical journals of this country and, as advertising costs money, are evidently prescribed by the American medical profession. The real patented preparation may have an ethical place. The patent is granted for some feature of the manufacture. This is protected only for seventeen years, while the copyright affords protection indefinitely. It is evident to any right-minded physician that these secret nostrums should not be prescribed, yet thoughtlessly and through inaction they have secured a great vogue.

Cause of Evil.—Dr. Billings considers that the cause of the evil lies in the deficient teaching of pharmacology and therapeutics. Altogether too little is said of treatment and there is no practice in prescription writing. While diagnosis, bacteriology, and pathology with anatomy and physiology are occupying so much time, the claims of pratical medicine are neglected. Too often a drug nihilism is the spirit of the medical teaching. Students should be taught insistently the value of single remedies and of simple combinations. Only by this will the root of the present evil, which is fastened in ignorance and nourished by the disinclination to think, be effectively reached. Meantime there are certain fomenters of the soil that can be made less fruitful of harm than at present.

Unethical Medical Advertising.—Most of the medical journals that come to the doctor's desk contain these nostrums advertised. The reputable pharmacists taught the lesson of calling exaggerated attention to the effectiveness of their preparations and the nostrum manufacturers followed suit and went them several better. One-half of the medical journals would go out of existence if such advertising were stopped. They could well be done without, however. At present most of the journals represent not the profession nor their editors, but their advertisers. This must be stopped if a serious evil is to be eradicated.

Dr. Musser, in opening the discussion, said that skepticism in therapeutics, especially in the use of old-time remedies, is undoubtedly responsible for much of this evil. A definite return to the prescription of old-fashioned remedies, even the so-called galenicals, would do away with this. Meantime the movement to lessen the prominence of the nostrum evil and the shame of their advertising must be encouraged in every possible way.

Resolutions.—Dr. Alfred Stengel, of Philadelphia, said that the American Medical Association now represents nearly 20,000 members. Some 15,000 more subscribe to the *Journal of the American Medical Association*. United effort on the part of all these would do much to wipe out the evil. He presented resolutions asking the House of Delegates to consider the matter and legislate for the evil. At the request of Dr. McCleve, of California, a supplementary resolution requesting the board of trustees to remove the advertisements of all nostrums from the *Journal of the American Medical Association* was added.

The Profession to Blame.—Dr. J. J. Walsh, of New York, said that the low standard of true feeling for medicine in the profession was to blame for the evil. In New York, where the medical education is not deficient, statistics show that over 70 per cent. of all prescriptions written contain some nostrum. Inquiry at drug stores within a month after an agent comes around to introduce a new and hitherto unheard of preparation, shows that physicians have begun to prescribe it. The good senses of the profession must be aroused to the enormity of thus selling their birthright as practitioners of medicine to the pharmaceutical quacks for even less than the proverbial mess of pottage.

State and Association Journals.—Dr. Moore, of St. Louis, said that even the State and medical association journals are not free from the objection of catering to advertisers who have secret nostrums to sell. This of course perpetuates the evil. Some one has spoken of Dr. Billings' action in attacking secret nostrums as courageous, but is it possible that members of the medical profession would actually be afraid to express opinions in this matter? Are doctors not men first?

Dr. Priestly, of Iowa, said that medical students are not taught properly to prescribe and their laxity in taking up with these ready-made prescriptions is due to this.

Dr. Strickenfeld, of Utah, said that in St. Louis it was the custom for medical students about to graduate to go around to the secret nostrum houses, of which there are so many in that city, and get a stock of these pharmacals to begin practice on. After they exhausted the supply they sometimes came back to the city to replenish their stores gratis.

Dr. Witherspoon, of Kentucky, said that the true physician is a medical student all his life. The fact that he has not learned prescription writing before graduation should only make a renewed incentive to learn it after, if he has the true professional spirit. The blame must not be laid on the medical schools but the men. Nostrum prescribing narrowed their minds until at last it was impossible for them to advance in medicine.

Dr. King, of Washington, said that an evil cannot, any more than a plant, be killed by cutting off its head. The root must be got at. Medical education must be improved from its practical side. In the postgraduate schools diagnosis, pathology, bacteriology, are all insisted on. Treatment is scarcely mentioned. Hence physicians grasp at the will-o'-the-wisp with the promise in it held out by the oily manufacturing chemist.

Dr. Grosse, of California, said that the battle against the nostrum was in full tilt in California and he is glad to see it spread. Unfortunately even reputable medical journals publish the "ads." of these nostrum venders and the unsuspicious reader cannot but think they must have some virtue in them.

Dr. McCleve, of California, said that in condemning the medical journals that of the Association itself must not be passed over in silence. It also admits what are, to say the least, objectionable "ads." to its columns.

Dr. Stockton, of Buffalo, said that publicity will be of the greatest help in this struggle with the nostrum. The fact that names are mentioned publicly, as in Dr. Billings' paper, must result in good. The more complete the exposure the more will the profession realize the fraud.

At the suggestion of Dr. Carter, of Victoria, Dr. Walsh, of New York, offered a resolution that the set of resolutions with regard to the nostrums adopted at

this session should be transmitted to the Canadian Medical Association for consideration, inviting joint action in any measures that may be adopted to mitigate the evil. The resolution as also the previous resolutions for the house of delegates and the board of trustees were passed without a dissenting voice.

Nitric Acid Fumes Inhalation.—Dr. J. N. Hall, of Colorado, read for himself and Dr. C. E. Casper, of Denver, a paper describing in detail the effect of nitric acid fumes on the lungs in some 20 cases. The patients were firemen, called to put out a fire due to the breakage of a carboy of stray nitric acid. The acid was soaked up with sawdust which oxidized very rapidly and burst into flames in many places. For this the firemen were summoned and found a thick, irritating smoke evidently due to a combination of acid fumes with the burning sawdust. The acid was very concentrated, over 38 per cent. in strength and contained no noteworthy proportion of nitrous acid and no sulphur impurities.

Course of Symptoms.—The men were overcome much more rapidly than ordinarily by smoke and there was an intense feeling of irritation of the respiratory passages on first going near the flames and then immediately after coming out from the first effects of the collapse incident to exposure to the fumes. The men were taken immediately to the hospital, but thought no more of their condition than if they had been overcome by smoke, which is a common experience with them. All of them asked and were permitted to return to their homes after a few hours. All of them, however, without exception, were brought back to the hospital within from six to twenty hours, because of severe irritative symptoms in the respiratory mucous membrane and because of the development of intense congestion of the lungs. After their return to the hospital all suffered from vomiting and some signs of collapse, and all of them complained of sharp pains on breathing as well as difficulty of respiration. All of the victims suffered from pleuritic pains, which on investigation proved to be accompanied by pleuritic friction sounds so that the pleura was evidently affected. After the signs of active congestion passed areas of consolidation could be demonstrated here and there. This bronchopneumonia proved of slow course and very prostrating in its tendency. The general symptoms did not seem to be different from those noted after the inhalation of chlorine or other irritant gases. Four of the cases proved fatal, one not long after the accident, three others toward the end of the month afterward. These three had recovered apparently from their bronchopneumonia and then suffered a fatal relapse. At autopsy the evidence of bronchopneumonia was clear.

Milwaukee Cases.—Dr. Neilsen, of Wisconsin, said that two years ago a similar accident ocurred in Milwaukee, and the symptoms ran a similar course. All of the men went to their homes after a couple of hours and then had to return later on for treatment. The signs were those of intense congestion of the lungs, though at first there seemed to be only a superficial though troublesome irritation of the respiratory mucous membrane. All of the cases improved very slowly and the return to complete health was long delayed. Finally all of them had to be sent to Texas to recuperate. On the way one of them, discouraged by the slow progress of his case, committed suicide.

Absorption of Toxic Material.—Dr. McCaskey, of Indiana, said that some of the prostration and general symptoms as well as the failure to react seemed in these cases to be due to the direct absorption of toxic material into the blood during inhalation. This should be an indication for treatment in such cases. The vomiting seems to have been nature's protective effort to throw off some of this absorbed material, which could not escape through the congested lungs.

Non-Infectious Bronchopneumonia.—Dr. J. H. Musser, of Philadelphia, said that the most interesting phase of Dr. Hall's work is undoubtedly the demonstration of the possibility of the production of bronchopneumonia by direct severe irritation. In recent years only the infectious factors in the etiology of bronchopneumonia have been considered to the exclusion of other important sources of this inflammatory reaction. It is for the careful study of this subject in recent papers that Dr. Hall is to be especially commended.

Slow Poison.—Dr. Hall, in closing the discussion, said that there were some symptoms in the cases extremely difficult to explain. The vomiting scarcely seemed to be due to poison, however, since it did not occur at once but in from twelve to twenty hours or more after the exposure; it would seem as though some broken down tissue material were being absorbed which was giving rise to the prostration and vomiting. Poison acts at once, all the men went home and then, later, had to come back to the hospital.

On motion of Dr. Musser, the paper of Drs. James E. Talley and William S. Newcomet, of Philadelphia, on "Studies in Roentgen Ray Diagnosis," with special attention to the diagnosis of pathologic conditions within the chest, was read by title.

SECOND DAY—JULY 12TH.

SYMPOSIUM ON NEPHRITIS.

General Considerations on Pathology.—Dr. W. T. Councilman, of Boston, said that the principal anomalies are chiefly those of position. The kidney is situated lower than usual or it hangs more loosely. In the normal kidney there is great differentiation of tissue and function. One curious feature of the kidney is its capacity for repair and yet the little ability it displays for perfection of regeneration. While new form tissue will frequently be found here and there, and the tendency to its formation is quite marked, complete new kidney structure does not occur in this way. With advancing age there is considerable impairment of kidney structure, mainly due to destruction and degeneration of the true secreting tissue. Hand in hand with this there goes an increase of connective tissue. The true kidney tissue usually suffers first and there is the overgrowth of connective tissue.

Bacterial Infections.—The bacterial infections of the kidneys resemble in their effects the conditions produced elsewhere by microbes. The most common group of renal diseases are those produced not by microbes directly, but by certain soluble toxic substances produced by the growth of micro-organisms or by disorders of the circulation. Interstitial changes in the kidney are practically always secondary to injuries of the true secreting substance. The most important legions of the kidney are those which affect the glomeruli. These are affected alone or principally, the inflammation may be acute, subacute or chronic. It is possible to make broad classifications on the basis of the pathological and anatomical changes. These, however, do not stand the test of clinical observation. The future study of the diseases must be along clinical and experimental lines.

Albuminuria in Nephritis.—Dr. Alfred Stengel, of Philadelphia, insisted on the necessity of distinguishing nephritis in the pathologic sense from nephritis in the chemical sense, which is the Bright's disease of ordinary conversation. Much of the chronic interstitial nephritis that is due to arterial conditions must not be considered as true Bright's disease; the

kidney symptoms are indeed a local manifestation of the arterial condition. Consequently all of these cases were eliminated by Dr. Stengel in his study of the relationship of albumin to Bright's disease. Altogether the records of 581 cases have been analyzed. Of these, 107 cases showed albuminuria, so there was no true Bright's disease. They included such conditions as diabetes, pregnancy, the albuminaria of adolescence and of the terminal stages of various affections. In these circumstances the albumin present is an expression of other diseases rather than of nephritis.

Nephritis without Albuminuria.—In over 200 cases of true nephritis there was no albumin present at any time while the patient was under observation. Eleven of these cases showed the presence of casts. The test used was that by heat and nitric acid, and all of the testing was done by one person. This test is not as delicate as some of the other tests employed, but it has the decided advantage of not reacting on other substances besides albumin, nor to such small amounts of albumin as constitute the presence of this pathological material.

Albuminuria without Bright's Disease.—This was observed in a large proportion of cases, but the albumin was never in large quantity, and, indeed, it was usually said to exist only in traces. Another prominent feature was that it was unusually fluctuating, and never permanently present. There were, however, some exception to these rules. Occasionally albumin was present in quite large quantities without apparently having any pathological significance. One young woman presented for two years the large albuminuria, the large amount of albumin was present in the morning and never at any other time. She was warned of the necessity of exercising care with regard to every detail of life. She married and was warned with regard to the dangers of pregnancy in the presence of her kidney condition. After a time she became pregnant, but her pregnancy did not seem to have any deleterious influence upon her kidney condition. No eclampsia developed and no signs of any serious nephritic complication. Her labor was without incident. She had three children altogether, and at the present time there is no trace of albuminuria. In contradistinction to this fluctuating albuminuria is the constancy and uniformity of the albumin present in Bright's disease.

Infections and Albuminuria.—Nearly all the infectious diseases are accompanied by a distinct amount of albumin in the urine. Among those noted as producing this effect were such simple infections as tonsillitis, erysipelas, acute rheumatism, gonorrheal rheumatism, and, indeed, all of infectious diseases accompanied by fever. In 290 cases of typhoid fever, 83 showed the presence of a distinct amount of albumin in the urine. It would seem as though the waste of tissue during febrile condition gave rise to substances which, passing through the kidney, irritated it sufficiently to allow the escape of albumin, or that albuminous material was somehow absorbed and then excreted.

Cardiac Disease and Albuminuria.—In practically all advanced cardiac disease albumin is present in the urine. In 154 cases in which cardiovascular changes were present, 81 had albumin, and 72 none. The urine is variable in cardiac disease in content of albumin, but this corresponds as a rule to the cardiac sufficiency. When small amounts of urine are passed and the urine is rather concentrated, considerable albumin is likely to be present. On the contrary, when cardiac sufficiency has been established and the urine has become normal in amount, then the amount of albumin usually decreases. This ratio can be observed in nearly all cases.

Secondary Syphilis and Albuminuria.—Dr. Stengel has observed in most of the cases of secondary syphilis under his care and among the records of the medical service of the University of Pennsylvania Hospital that albuminuria is quite common during secondary syphilis. He has few opportunities for observation in regard to this disease, but considers an investigation of it from this standpoint would furnish important information. He is not sure that the albuminuria present is due to the secondary syphilis itself, or whether it should not rather be attributed to the too frequent use of mercury in the disease. Certain it is that in most cases, if mercury is employed in considerable doses, it proves an irritant to the kidney, causing congestion, and leading to the presence of albumin in the urine.

Conclusions.—Dr. Stengel considers then that while in general albumin casts in the urine are signs of kidney disease, they may occur without any affection of the kidneys. There are certain inflammatory conditions of the kidneys of very passing nature, which may cause albumin to be present in considerable quantities. When albumin is present in considerable quantities and constantly, then it has a definite pathological significance. The presence of a trace of albumin has sometimes been exaggerated into a pathognomonic symptom of Bright's disease. Dr. Stengel does not wish to lessen the value of urinary examinations, but considers that they must always be supplemented by careful clinical observation of other organs throughout the body. A larger view must be taken of the affections, and especially the importance of vascular condition must be realized if there is to be any proper idea obtained of the kidney condition and its relation to the general health.

Casts in the Urine.—Dr. Charles P. Emerson, of Baltimore, discussed the subject of the significance of casts. Epithelial casts are sometimes said to be most significant. They are, if they consist, as is sometimes the case, of fragments of kidney tubules which have been broken off and are excreted in the urine. Not infrequently the lumen of these tubules can still be seen, leaving no doubt of the origin of the cast and of the serious pathological condition at work. Most so-called epithelial casts are only hyaline casts, on which are gathered a few cells with round nuclei. Some of these cells, as has been emphasized by Dr. Cabot, are not surely of renal origin. Even if one cell clung to a hyaline matrix it would be sufficient to constitute an epithelial cell. Pus casts and blood casts are also said to be of special significance, but they occur often in temporary conditions, such as after severe athletic exercise, or after unaccustomed exertion.

Showers of Casts.—In certain conditions there occur what has been described by the very picturesque term of "showers of casts," a sudden elimination in the urine of a great many casts. In diabetes the occurence of a shower of casts indicates the diabetic coma is about to assert itself. Many of these casts are of finely granular character, and sometimes there has been no preceding sign of kidney trouble. It is sometimes said that fine granular casts are a stage of nephritis subsequent to coarsely granular casts. This observation in diabetes seems, however, to disprove this. True hyaline casts are much rarer than they are reported. It requires careful adjustment of the light of the microscope to enable the observer to see them. They are almost exactly the color of the fluid, and escape observation.

Other Forms of Casts.—Waxy casts are not so infrequent as has been imagined, though their significance is not clear. When they are yellowish they look exactly as if they were composed of beeswax. The

lighter-colored ones remind the observer very much of paraffin. Fatty casts occur frequently in the nephritis due to malaria. How serious may be the significance of waxy casts may be gathered from the fact that they can be best observed in the urine of bladders abstracted post mortem. It seems not unlikely that some serious agonal condition is responsible for them toward the end of life.

Casts without Nephritis.—In 11 cases in which casts were present leading to the diagnosis of nephritis the autopsy showed only a chronic passive congestion. The autopsies were very carefully made and there was no sign of nephritis, either macroscopically or microscopically. In 23 cases in which casts were rather abundant in the urine, only cloudy swelling was found to be present post mortem. It is not as yet decided whether this represents a stage of inflammation, but certainly the kidneys in these cases could not be considered to be suffering from true nephritis.

Acute Nephritis of Casts.—Casts are most abundant in acute nephritis. In these cases epithelial blood and pus casts are most common, though after a time coarsely granular casts are found, only later do the finely granular casts occur. Acute exacerbations of chronic kidney disease presents the same picture as acute nephritis and an abundance of casts. On the other hand, in chronic nephritis casts become much rarer. In the large white kidney, representing chronic interstitial nephritis, the larger the kidney the more the casts. In the large and small red kidney of arterial sclerosis casts are rather infrequent, and are not especialy significant. Amyloid disease was present in 18 cases under observation at Johns Hopkins. Most of these presented few casts, two of them had no casts at all, though in nine cases altogether the casts were important. In two cases waxy casts were present, but very few casts showing the true amyloid reaction.

Conclusions.—Casts predominate then in acute conditions of the kidney. The better the condition of the kidney just before the irritant enters it, which causes the casts, the more casts will eventually be present. In diabetes without preliminary nephritis, there may be a shower of casts with an enormous number of them, and any diffiuse kidney condition due to irritation may produce a like effect. Athletes, especially bicyclists, foot runners and oarsmen, often have a large number of casts in their urine just after they have undergone severe exertion. The kidney seems after a time to get used to the irritant present in the system, and then the casts cease to appear. The sudden exertion produces materials which irritate the healthy kidney into a reaction that looks like a pathological condition.

Irritant Substances and Cases.—Certain foodstuffs, as asparagus, seem to have a definite tendency to give rise to casts in the urine. Most of the spices, and especially mustard, has this same effect. On the other hand, salicylic acid, even in ordinary doses in susceptible subjects, may give rise to casts. In one person under observation at Johns Hopkins Hospital, the presence of casts seemed to be a hysterical manifestation, though they have been seen at intervals for many years no serious effect has followed, and it would seem as though the condition which they represented was not distinctly degenerative nor progressive.

Puerperal Eclampsia in Relation to the Kidney.—Dr. Philip King Brown, of San Francisco, has studied the analyses of 54,000 births. In 105 of these births some symptoms of eclampsia developed. Most of them were hospital cases, hence the proportion of eclampsia is higher, for many of the patients were admitted to the hospital because of the development of eclamptic symptoms. In 18 per cent. of all these eclampsia cases true nephritis was not present, but only renal irritation. The connection between the kidney and eclampsia is by no means as clear as used to be thought, and the fact that albumin in casts frequently appear during pregnancy, does not at all necessarily signify that nephritis is developing. The strain the kidneys are undergoing resembles that which they are subjected to in the severe exertion of athletes, and so it is not surprising that casts and albumin should be present.

Contributing Factors to Eclampsia.—Dr. Brown calls attention to the fact that thyroid enlargement is quite common in pregnancy, and this seems to be due to the fact that greater calls are made on the functions of this gland, which it is sometimes not able to meet except by hypertrophy. At times sufficient thyroid substance is not prepared, and consequently an intoxication results. Dr. Brown has found that according to certain observers, if one-fifth of the thyroid glands be removed from pregnant cats, attacks develop which are not unlike those of eclampsia. As a matter of fact the only connection between the kidney and eclampsia has been the similarity of eclamptic attacks to uremic seizures.

Decrease of Urea.—Dr. Brown calls attention to the fact that the ordinary observations on the amount of urea in cases where eclampsia is threatened are not likely to be of much service. In certain quite normal cases there is a decrease of the urea toward the end of pregnancy. The present methods of estimating urea do not give sufficiently definite information. The reduction in urea excretions by no means indicates a danger signal.

Other Theories.—There are other theories as to the origin of eclampsia. The most prominent are those which associate with changes in the liver and in the placenta. In quite a few cases the changes in the liver found in eclamptic subjects have been quite as marked as those found in the kidneys. Animals with hepatic fistulæ have not infrequently suffered from an intoxication resembling uremia. Hence the supposed connection of the liver with eclampsia. With regard to the placenta, recent observations seem to show marked change in that organ in patients who have died from eclampsia. The serum of the child in eclamptic cases is hemolytic for the maternal blood. It would seem as though certain affections of the placenta might be reflected in the mother's condition. Some observers have considered eclampsia due to a general disturbance of metabolism. Just as the diacetic acid causes diabetic coma, so some as yet unknown substance in the circulation may cause eclampsia.

Muscular Irritability — Personal Observation.—Dr. Brown has found that the muscles of pregnant guinea-pigs are much more excitable than those of animals under ordinary conditions. Irritants which produce no effect at all on the muscles of non-pregnant animals will set the muscles of the pregnant animal in a state of spasmodic contraction. It would seem that this is a contributing cause to the eclamptic convulsions. The muscles of the pregnant woman are much more irritable to irritants of almost any kind, and consequently the convulsions occur.

(To be Continued.)

SECTION ON SURGERY AND ANATOMY

FIRST DAY—JULY 11TH.

Chairman's Address.—Dr. Maurice H. Richardson, of Boston, Mass., referred to some of the accidents and mistakes in surgery and gave a number of instances of errors, particularly in diagnosis, occurring to himself personally He called atten-

tion to the fact that the surgeon is blamed for everything that goes wrong in patients coming under his care, regardless of who might be responsible. He urged that all recent graduates should spend a number of years assisting prominent surgeons before branching out for themselves, being careful, however, to avoid becoming thereby such chronic students that they lost confidence in themselves.

The Cure of Hernia.—Dr. H. O. Marcy, of Boston, Mass., read this paper. In it he traced the history of the modern operation for the cure of hernia from its beginning, giving his own experiences of the use of the buried animal suture for the reconstruction of the inguinal canal through the abdominal wall, restoring it to its normal obliquity. This it was not possible to carry into effect without the use of buried sutures. As Mr. Lester's first American pupil Mr. Marcy had been taught the use of the buried animal ligature, as recommended by this great master for the occlusion of the arteries both in continuity and in amputations. It was but a logical sequence to broaden the use of the animal ligature and apply it to the reconstruction of divided structures. This was the inception of the buried animal suture and had its first application for the cure of hernia in 1870. Since 1882, when he used the kangaroo tendon suture, he has used exclusively this surgical material. Although not universally adopted, the kangaroo tendon suture is, he believes, for many reasons considered the best. The cause of inguinal hernia in the male is more commonly found in the lack of the developmental processes of infantile life. Here not seldom the structures about the internal ring are defective, permitting a direct intra-abdominal pressure resulting in hernia. The cure is found in the restoration of these parts to their normal condition. There are many modifications of the operation of minor character, the results of which are excellent, but the fundamental physiological basis of the operation must ever remain.

Fibroid Growths of the Abdominal Wall.—Dr. C. A. Powers, of Denver, Colo., referred to the infrequency of these so-called dermoid tumors, and stated that they generally occurred in women from twenty-five to thirty-five years of age, who have recently been pregnant, and most often in the region of the right rectus muscle below the naval. He considered at some length the etiology, form, size, pathology, development and course, and also the symptoms, diagnosis, management and the immediate and remote results of operations. Postoperative hernia and relapse of growth was referred to, together with a review of the literature on the subject, and of the author's cases.

Dr. R. F. Weir, of New York, reported having seen two cases similar to those referred to by Dr. Powers.

Dr. Rixford, of San Francisco, reported one similar case; Dr. McGlennon, of Baltimore, Md., reported another, as also did Dr. Connell, of Fon du Lac, Wis., who had seen two cases; Dr. Willoughby, of Los Angeles, and Dr. Fulton, of Astoria.

The Chairman referred to the effect of Dr. Coley's serum in cases such as those reported, and claimed that he had seen considerable benefit result from this treatment.

Splanchnoptosis from a Surgical Standpoint.—Dr. James E. Moore, of Minneapolis, Minn., stated that there was great confusion in the use of terms that applied to ptosis of the abdominal organs, splanchnoptosis being, probably, the best general term. Glenard, in 1885, gave the first good description of this condition, and claimed that splanchnoptosis included all of the abdominal organs and that it never occurred without serious digestive troubles. The causes of splanchnoptosis are not well understood. The symptoms vary according to the organ or organs most affected, but in a general way they are those of neurasthenia. A patient suffering from this train of symptoms should never be pronounced dyspeptic, hysteric or neurasthenic and be sent away with a prescription without having a most careful physical examination made. Hepatoptosis is much more frequently involved than we have heretofore believed, and when the liver is prolapsed all of the other organs must come with it because of their anatomical relations. Glenard said that splanchnoptosis is incurable, but he recommended medical treatment and the abdominal binder only. The fact that operations for ptosis of the various organs can be done almost without mortality gives us no license to operate indiscriminately, but it entitles these sufferers to the help of surgery. When a patient comes in consultation with this motely array of symptoms some one of the organs should not be picked out, but a thorough diagnosis and a complete operation should be made. The relative frequency and importance of ptosis of the various organs depends upon the observer's viewpoint. When the internist, the neurologist, the gynecologist and the surgeon gain the same viewpoint all will be in a position to accomplish the most good. Surgery should not be recommended in these cases until intelligent medical treatment has failed, but the latter having failed it is the surgeon's duty to operate. Surgery cannot be offered as a panacea, because there is a possibility that neurasthenia may continue after all mechanical defects have been repaired. Past failures are largely due to incomplete operations. The shortening of suspensory ligaments alone is liable to result in failure, because they were surely not intended by nature to bear the weight of these organs. Attention must be given to the support from below. It is still a moot point as to whether a prolapsed organ or neurasthenia, when found together, is the primary condition, because each of these conditions may exist without the other, but the cure of the prolapse will ofttimes cure the nervous condition. Any operation in which a direct attachment of the stomach is made to the abdominal wall is bad surgery. The application of the gastrohepatic and gastrosplenic omentum is theoretically good, but the frail tissues may not hold. After a failure from this cause the writer made an anastomosis between the prolapsed colon and the sigmoid, which resulted in a complete cure. Gastroenterostomy is the best operation for a dilated stomach when dilatation is not due to atony. Recent experiences have taught that hepatopexy is a safe and satisfactory operation. A number of mattress sutures of chromic catgut or kangaroo tendon are passed from below upward through the liver about one and a half inches from its margin, then through a good bite of the soft parts underneath the costal cartilages, then downward through the liver again so that the knots can be tied below when the liver is held in place. All sutures should be passed before any are tied. These are undesirable patients because of their extremely stormy convalescence, but the immediate prognosis is good, and, while experience as to end results is too limited to draw definite conclusions from, it is so far sufficiently encouraging to justify the belief that one may be able in future to restore to health and usefulness many who have heretofore been condemned to hopeless invalidism.

Dr. Coffey, of Portland, showed a number of illustrations, giving a very good idea of some work he had done along this line, one of the most important illustrated the various methods in which the abdominal organs are suspended.

Early Diagnosis of Gastric Ulcer.—Dr. H. D. Niles, of Salt Lake City, took up the relative frequency of the different symptoms of this affection and the various diseases resulting therefrom. He advised the grouping of these symptoms before making a positive diagnosis and deciding on exploratory incision.

Clinical Experiences With the Use of the McGraw Elastic Ligature.—Dr. A. J. Ochsner, of Chicago, described his operation, which is an elaboration of the original enclyran ligature in detail, and gave the results obtained in several cases.

Chronic Ulcer of the Stomach and First Portion of the Duodenum, with Especial Reference to Operative Treatment.—Dr. William J. Mayo, of Rochester, Minn., in this paper, stated that clinical observation as to the frequency of gastric ulcer gives from 1/12 to ½ of 1 per cent., while post-mortem examinations show 1½ per cent. in America to above 5 per cent. in Europe. Duodenal ulcer has not been closely observed either clinically or at post-mortem. At the operating table the duodenum has been found to be involved in more than one-quarter of the cases, and in more than one-half of these subjects there were no gastric complications. Of nearly 800 operations upon the stomach and duodenum in the hands of Dr. Chas. H. Mayo and the writer, nearly 450 were for ulcer or some of its numerous complications. Medical cures shown by statistics to be from 20 to 40 per cent., but like attacks of recurrent appendicitis or gall-stone colic, subsidence of acute exacerbation may not mean cure. In two and one-half years, 280 gastric and duodenal ulcers operated at St. Mary's Hospital, 231 were subjected to gastrojejunostomy, 119 males, 112 females. Of 231 cases, 60 involved the duodenum. Mortality of the last 140 gastrojejunostomies was less than 3 per cent; last 80 but one death. Two clinical groups should be distinguished. (1) Surgical or pathological ulcer, involving all coats of stomach or duodenum, and easily recognized from exterior of organ, and at least two-thirds occur in males. (2) Medical or clinical ulcer involving only mucous coat, and not indicating location without examination of interior of gastric cavity more numerous in females. Operation is not indicated in the prolapsed, dilated stomach due to the neurasthenic state, in atonic dilatation, nor in acute ulcer, unless for complication (perforation, hemorrhage, etc.). The author said he would advise and practice operation in cases with obstruction, the results of ulcer, and in cases in which prolonged medical treatment has failed to cure an active or relapsing ulcer. Gastrojejunostomy made by suture between the posterior, inferior wall of stomach and jejunum within three inches of origin (no loop) gives best results. Excision of ulcer, Finney's and Rodman's operations have an increasing field of usefulness.

Dr. Ochsner took up the question of the Finney operation and also the Moynihan operation.

Dr. Mayo also referred to the Finney operation and particularly to the interesting statistics of Dr. Francine.

Acid Intoxication and Late Poisonous Effects of Anesthetics.—Dr. A. D. Bevan, of Chicago, called particular attention to the effect of chloroform on the liver, and stated that it was a frequent cause of death some days after anesthesia, the condition being as definite a pathological entity as acute pancreatitis, or phosphorus poisoning. The changes are in many respects similar to the acute cell-poisoning induced by arsenic.

Dr. H. C. Moffitt, of San Francisco, gave the details of six cases which he believed had died from the effects of chloroform.

Dr. Woods Hutchinson, of Portland, felt that Dr. Bevan's paper would be a great aid in assisting toward the development of the newer views regarding the functions of the liver, and more particularly in their relationship to various types of suboxidative intoxications.

Perforations in Typhoid Fever.—Dr. Richard H. Harte, of Philadelphia, reported a number of cases in support of his thesis that a surgeon should always be on hand in all cases of typhoid fever; and urged that he should be called in earlier by medical men, particularly in those cases in which perforation was to be feared.

Dr. Lawrence Litchfield, of Pittsburg, asked if Dr. Harte referred to local or general anesthesia, and also as to whether or not any observations were made with a view to determining blood pressure.

Dr. Charles A. Powers, of Denver, Col., commented on the excellent results of Dr. Harte's previons work along this line.

Dr. Manges, of New York, called attention to the importance of a fall in the temperature and an increase in perspiration as diagnostic features of the occurrence of perforation.

The author replied to Dr. Litchfield's inquiries by stating that he referred to general anesthesia, and that he had had no experience on the question of blood pressure.

SECOND DAY—JULY 12TH.

A Clinical Chart for the Record of Patients in Small Hospitals.—Dr. George F. Wilson, of Portland, Ore., read this paper, and stated that on account of the scarcity of clerical help in the small hospitals throughout our country no record of scientific work is preserved. A simple form of chart, prepared as such, without the necessity of being copied into record books, offered for suggestions and improvements, that such work could be preserved in an accessible form.

Dr. Wright, of Salt Lake City, considered the chart was too large, and that the spacing was not satisfactory.

Dr. Harry M. Sherman, of San Francisco, objected to the necessity of writing on both sides and to the fact that the chart was to be kept by some one other than the physician himself.

Preliminary Report of a Statistical Study of Tetanus.—Dr. James M. Anders and Dr. Arthur C. Morgan, of Philadelphia, read a paper on this subject. They undertook a study of the literature from 1850 to 1904, covering the reports of cases found in the Index-Catalogue of the Library of the Surgeon-General, in Washington, from 1850 to 1892, and the Index Medicus from 1892 to 1904 inclusive, or 949 cases, with a report of 252 original cases collected by themselves from direct correspondence with hundreds of observers all over the country, giving a total of 1,201 cases. These collective investigations afford convincing proof that in every case of the disease the tetanus bacillus is introduced into the body through a lesion of the skin. Their observations concerning the distribution and prevalence of tetanus in the United States gave rather misleading results, and hence they adduced tabulated reports from the Census Statistics of the United States, ex-

tending over a period of thirty years. The figures are impressive as showing the appalling mortality from tetanus of the newborn. Their statistics showed that while Fourth of July tetanus is vastly on the increase, in general the disease has been on the decrease as compared with the population. They found out that there is a strip of land, extending from the village of Oceanic, New Jersey, on the east, to the west of Red Bank, on the west, the said strip being about one mile wide and five miles long, where tetanus is strongly endemic. The incidence of the disease is influenced by the seasons, and while Fourth of July is on the increase, independently of this fact,, the statement holds true that tetanus is more prevalent in the hotter as compared with the colder months of the year. The cases were tabulated with reference to the age; the disease is most frequent in the young, or before the twenty-fifth year. Males made up 79.3 per cent. of 981 cases in which the sex was noted. An interesting table, showing the infection areas, was presented; it showed that the extremities, notably the hands and feet, are the most common sites of infection. There is evidence to show that tetanus is directly transmissible. In their tabulated cases, several interesting clinical features were brought to light. In one case the trismus was so great that the teeth were crushed down to their roots, and in another the spinal processes of the vertebræ were fractured by the severity of the convulsions. Leucocytosis was noted in one instance, and it was thought that this symptom might be more common than is generally supposed. In one case the patient had a temperature of 1° F. every day during the period of incubation, and the writers suggest the importance of recording the temperature in suspicious cases, in order to determine whether there is any connection between a slight febrile movement and tetanus. In three cases the first symptom noticed was pain referred to the diaphragm; in another the diagnosis of hydrophobia was maintained for several days. In nearly all cases in which serum was injected cutaneous rashes, more especially urticaria and erythema, were noted. Their studies indicate the high diagnostic importance of the constancy of the tonic contractions in tetanus, since in other conditions, which simulate this disease, as hysteria, uremia, and strychnine poisoning, the contractions are intermittent. A table showing the incubation period and its relation to the mortality-rate embraced some interesting points. It was especially observed that the cases showing a short incubation period gave a high mortality-rate, while those that developed late, (*e.g.*, after the fifteenth day), gave a much lower death-rate. Another tabulation indicated the duration and its relation to the death-rate. No new facts were developed with reference to the treatment. There is uniform agreement that the immediate radical treatment of all wounds, followed by the local use of the dried serum, and this in turn by prophylactic injections of the antitoxin, preferably subcutaneously, is the best known method of treatment. Finally, in fully developed cases of tetanus, antitoxin does not have any appreciable beneficial effect.

Dr. L. L. McArthur, of Chicago, called attention to the importance of the early diagnosis of cases of tetanus, and said that in Chicago it had been the custom to administer antitoxin to patients in whom tetanus was likely to develop before receiving the report of the bacteriologist of the positive findings of the organism.

Dr. McCaskey, of Fort Wayne, Ind., objected to the method of serum injection before a positive diagnosis had been made, and felt that the thorough cleansing of the wound was all that was necessary.

Dr. Walsh, of Erie, reported a case of death from tetanus, although thoroughly treated by him within an hour of the accident.

Dr. Anders closed the discussion by arguing in favor of prophylactic treatment.

Cysts of the Spleen.—Dr. W. A. Bryan, of Nashville, Tenn., read this paper, and said cysts of the spleen rarely occurred without similar lesions elsewhere. They are classified as (1) dermoid, one case reported by Andral; (2) simple, serous, or blood cysts; (3) echinococcus cysts. He stated that cyst walls were fibrous tissue with more or less unstriped muscle fibers, with or without endothelial lining. The contents varied with the type of cyst. Small cysts produced no symptoms. Large cysts, he stated, produced symptoms of their size and weight. Begun in left hypochondrium, movable unless adhered, fluctuant, pain in left hypochondrium, epigastrium and left subscapular region. Nausea and vomiting might occur and rarely obstructive symptoms. Hydatid thrill absent in 50 per cent. of echinococcus, and found at times in ascites and ovarian cysts. Splenic cysts must be differentiated from abscess of spleen, ovarian cysts, growths of the pancreas, hydronephrosis, mesenteric cysts, and enlargement of the spleen from malaria and leucemia. The history, the point of origin, direction of growth, the rate of uniformity of growth, or its absence, together with collateral symptoms and signs now and then make a diagnosis possible. Cyst of a wandering spleen would present great difficulty of diagnosis.

The terminations of cysts of the spleen are by absorption, abscess formation, rupture into a viscus, or into the pleura or abdominal cavity, where the fluid is capable of producing numerous cysts of the peritoneum echinococcus.

The treatment is to open and drain or do splenectomy. Do not excise part of spleen; do not aspirate.

Indications for the Removal of the Pathologic Spleen.—Dr. B. D. Davis, of Omaha, reviewed the recent physiology of the spleen; the several pathologic conditions suitable for splenectomy; splenic anemia, malarial spleen, sarcoma; tuberculosis and abscess. He reported a case of successful splenectomy, and gave the clinical blood and pathologic findings.

Dr. Charles A. Powers, of Denver, had operated on several cases of cyst of the spleen and had been fortunate in having little or no bad results; whereas diagnosis was difficult, operations were not.

Dr. H. G. Marxmiller, of Cincinnati, considered that the subject should be divided into the medical and the surgical spleens, and advised the examination of a dried specimen of blood before operating.

Drs. McDonald, of San Antonio; Jepson, of Iowa; Griffith, of Kansas City, and others, reported histories of cases.

Dr. Davis closed by calling attention to the blood variations before and after operation.

Lip Operation for Cancer and Deformity, with Report of Cases.—Dr. W. W. Grant, of Denver, Col., described in detail a new operation for carcinoma of the lips and deformity of the mouth, which he claimed was superior to the ordinary operations for these conditions.

Cervical Esophagectomy: Report of a Case with Prothetic Appliances.—Dr. Wallace I. Terry, of San Francisco, Cal., in this paper claimed that the involvement of the cervical portion of the esophagus

was secondary to the epithelioma of the larynx. He reported having done a previous laryngectomy with resection of the esophagus and removal of the submaxillary glands, epiglottis and thyroid gland, and described the technic of the operation and the prothetic appliances for feeding and phonation.

Cancer.—Dr. William L. Rodman, of Philadelphia, considered that cancer was increasing in frequency; that the parasitic theory has not been proven; that the weight of evidence was against it, and that prolonged irritation was seemingly the most reasonable cause. The general belief that benign growths frequently undergo cancerous change, if we excepted superficial warts and moles, he claimed could not be proven, as it was of infrequent occurrence, while sarcomatous change was more frequent. He stated that prognosis varied with the varicty of growth, age of patient, etc., and that diagnosis should be made as early as possible, supplementing the ordinary clinical means by microscope if necessary. The only safe treatment, in his opinion, consisted in free and early excision. Whereas, superficial squamous epitheliomata may be treated successfully by caustic and X-rays, other varieties were more often made worse instead of better by such treatment. Where it could be shown that a precancerous stage existed, operation should be done at once, but it was at first necessary to show that it existed, and impressions should not be accepted as facts.

Dr. Levings, of Milwaukee, called attention to the apparent relation existing between tuberculosis and cancer and gave instances of families where this seemed to have been proven.

Dr. Jacob Frank, of Chicago, mentioned a case similar to Dr. Terry's, on whom he had operated for carcinoma of the larynx, and in whom the remarkable result was obtained of the patient being able to articulate loud enough to be heard by everybody in a room with a seating capacity of three hundred.

New Method of Incising and Suturing the Liver to Re-establish Its Continuity, and for the Control of Hemorrhage.—Dr. Jacob Frank, of Chicago, described his method of operating, particularly in the controlling of the hemorrhage. He stated that his chief object was to bring his flaps together, and obliterate all dead space, as this re-established the continuity of the liver surface, and left no raw surface nor ragged edge.

Gall-Stones in the Common Duct.—Dr. W. D. Haggard, of Nashville, Tenn., mentioned a number of cases on which he had operated, and looked upon stones in the feces as an indication for operation. He considered that operation in the presence of prolonged jaundice was dangerous, and mentioned a number of differential points between tumor and stone obstruction.

Non-Calculous Cholecystitis.—Dr. Davis S. Fairchild, of Des Moines, Iowa, called attention to the number of cases operated upon for gall-stones where no stones were found. In addition, he mentioned that practically no changes were sometimes observed in the appearance of the gall-bladder, in spite of the supposed gall-bladder disease.

Dr. McLaren, of Minneapolis, said that hemorrhage following operation for gall-stones was not always to be feared, although it possibly should never be forgotten. He believed, further, that the presence of stones in the feces indicated that they were almost always associated with stones in the common duct.

Dr. Porter, of Fort Wayne, Ind., reported a history showing that the patient had been well for ten years following an attack of gall-stone colic. He finally came to operation for the relief of biliary obstruction.

Dr. A. J. Ochsner, of Chicago, called attention to the important points in Dr. Frank's paper: (1) the importance of making distinct flaps; (2) the clean surface, and (3) the care required in closing the liver wound. He said that acute obstruction of the common duct was no longer operated hastily as in times gone by, and he thought of late greater success had attended the operation as a result.

Dr. William J. Mayo, of Rochester, Minn., spoke in favor of Dr. Frank's method of controlling hemorrhage in liver surgery, and added that the injection of hot water into the liver was very beneficial for the same purpose. He urged the necessity of carefully differentiating one's gall-bladder cases, and said that one could never be sure a case of gall-bladder was going to do well. He spoke concerning the very irregular relation between jaundice and pain. Jaundice in particular often being very variable in intensity, or even in its actual occurrence.

Dr. J. J. Hamilton, of Idaho, reported an interesting case of gall-bladder disease. The patient operated upon himself without an anesthetic, removed six stones, and made a good recovery.

Dr. Frank, in closing, believed it was possible to readily control hemorrhage and liver operations, and urged that liver surgery should be put on a plane with appendicitis.

Dr. Haggard closed by stating that he was always dubious about accepting the statement of a patient that they had passed gall-stones unless they could produce them.

(To be Continued.)

SECTION ON DISEASES OF CHILDREN.

FIRST DAY—JULY 11TH.

The Teaching of Pediatrics.—Dr. John Lovett Morse, of Boston, the Chairman, began his address with a general description of the methods of teaching now in use in the Harvard Medical School. In brief these consist of lectures and laboratory work, on the now well-known concentration plan, during the first two years, the addition of the basal facts in the practical aspects of medicine with preliminary clinical work in the third year, and a fourth year of clinical work on the Elective System. In the fourth year, as well as in the clinical work of the third year, the students are divided into sections so that an average of about one instruction to every four or five students exists. The Pediatric Department controls the material in the Children's and Infants' Hospitals, and in the Infectious Department of the Boston City Hospital. The instruction in the third year consists of lectures, clinical lectures and instruction in case taking. The instruction does not always cover the same ground from year to year, but certain subjects of supreme importance, as diseases of the digestive system and the heart and lungs, are always taken up. The system of case taking consists in presenting to the students a variety of typewritten descriptions of actual cases which he is required to read up and diagnose. The students of the fourth year take one or more courses in pediatrics, lasting a month each, during which each student assists in the ward work, studies special cases or groups of cases and is encouraged to do original work. Postgraduate courses are given at certain times of the year. Dr. Morse emphasized the necessity of making pediatrics a special department, independent, and taught by specialists; only under such a system can the specialty be adequately taught. He also empha-

sized the necessity of leaving the clinical work of the third year to the end of the year and devoting the beginning to grounding the student in the anatomy, physiology and pathology of childhood. He suggested that there is still room for the didactic lecture if this is not merely the repetition of a textbook, and also that the amphitheater clinic was useful for presenting those diseases which are externally obvious. The recitation method, he stated, has been of little value in his hands. The necessity of endowing teaching positions was emphasized.

A Plea for National and Local Boards of School Hygiene.—Dr. Alice M. Smith, of Tacoma, made an appeal for a great extension of the present methods of medical school inspection. She suggested that the American Medical Association should take measures to establish national, State and local boards of school hygiene, with specially prepared physicians in charge. After commenting on the preventability of certain diseases, the financial loss from deaths, and the prevalent diseases due to faulty school hygiene, Dr. Smith outlined her plan for the prevention of the present conditions. Most of the existing bad conditions were ascribed to the ignorance of school boards, and of parents and the children themselves. Dr. Smith suggested as a remedy the formation of a national board having charge of the school hygiene and composed of non-partisan physicians, this board to cooperate with and instruct subsidiary State and local boards. The functions of the national board would be to provide plans for sanitary school buildings and school furnishings, to conduct civil service examinations for school physicians and janitors, and to publish leaflets of instruction from time to time. The State boards should have the power to choose proper sites for schools, to frame laws governing school hygiene and enforce them, to close unsanitary school buildings, to control the exclusion of degenerate or criminal children from the common schools and to keep records of the progress and development of the school children of the State.

The local boards should consist of business men and physicians, should keep records, and should confer with the national and State boards from time to time. It was proposed that in each school every child should submit to a complete physical examination, even including blood and other microscopical examinations and psychological records. The use of the Bertillon system was recommended. The records thus obtained were to be available to the State and national boards for study and reference. There was to be a county medical superintendent for the country districts, and the superintendent in each city school was to be a physician. The functions of the board were to include the distribution of literature bearing on school and general hygiene and advice to the parents of each child, based on its examination.

Dr. A. W. Fairbanks, of Boston, in the discussion, pointed out the weakness of the present system, which gives no preventive power to the Medical Inspector, and allows of little time except for the identification of already developed diseases. The same speaker characterized Dr. Smith's scheme as Utopian under present conditions, on account of the expense required, as a great increase in physicians would be demanded. The desirability of an extension of the present system was conceded by all who discussed the paper.

Rules for the Care of Young Infants in Public Institutions.—Dr. H. H. McClanahan, of Omaha, Neb., in his paper gave in a concise way his experience of over four years with an institution for the care of infants. The main points which were emphasized were the necessity for trained nurses in such institutions and a greater control over the nursing staff by the visiting physician. On the side of the infants a large amount of cubic air space, a good milk supply, and careful disinfection of napkins was insisted on. Regarding the latter matter the opinion was expressed, both in the paper and in the discussion, that careful hand disinfection after changing infants, and immediate disinfection of napkins, was of great importance in preventing the spread of diarrheal diseases. The isolation of infants who showed any signs of sickness was also insisted upon. Dr. Fairbanks, of Boston, in the discussion, suggested that the exclusion of flies from sick children was also a factor in preventing the spread of infection.

Second Day—July 12th.

Amaurotic Family Idiocy.—Dr. A. C. Cotton, of Chicago, said: This condition is often overlooked by pediatrists, as the eye conditions often predominate, though, on the other hand, the examination of the fundus is necessary for diagnosis. The name Amaurotic Family Idiocy was suggested by Sachs, who gave the first satisfactory description of the disease. The disease is a fatal one, as a rule, beginning in the first few months of infancy in children born without any apparent abnormality. Death usually occurs within the first two years, though it may be deferred. Syphilis and consanguinity do not seem to be etiological factors. The racial factor is a strong one, all of the 54 cases reported, except six, having occurred in Hebrews. Often more than one child in the family is attacked, though others may escape. In a typical case the child first manifests symptoms at about the third month, there is muscular enfeeblement and gradual loss of sight. The ocular changes are very characteristic and consist of a nebulous whitish zone about the macula. As the case progresses the strength is gradually lost, there is some emaciation, hyperacuity of hearing, and mental symptoms in the form of general lack of mental development, and attacks of explosive laughter. The child presents great hypersensitiveness, and convulsions may be caused by very slight peripheral insults, such as blowing on the face. If repeated the insults have a lessened effect, but marked reactions follows on short periods of rest. Nystagmus is quite frequently seen. The reflexes may be either increased or decreased. The cases finally show a general spastic or flaccid paralysis. Deglutition is quite frequently affected. The condition may be confused with rachitic pseudoparalysis or with spastic paraplegia, associated with congenital blindness. Dr. Cotton's paper was based on three cases personally observed and an extensive review of the literature. It was brought out in the discussion by Dr. Cotton that nearly all the cases are breast fed, and he showed that in one mother having both normal and idiotic children, the milk was normal during lactation while the healthy children were nursed, but deficient in fat while amaurotic children were nursed. Dr. Cotton was able to prolong the course of one case by adding fats to the diet. He suggested that the poverty of fat indirectly influenced the production of lecithin, which is so important in the development of the nervous system.

Ataxia of Central Origin Appearing in Childhood.—Dr. A. W. Fairbanks, of Boston, in this paper discussed the so-called heriditary cerebellar ataxia, a race condition simulating in many ways Friedreich's

ataxia. The clinical picture begins in childhood with an incoordination affecting first the legs and later involving the arms and perhaps the ocular muscles. The progress is slow. Speech may be affected and is of a peculiar character, not scanning, but suggesting that the individual thinks out each word carefully before pronouncing it. Explosive speech is at times observed. Nystagmus is usually present, and choreiform or pseudo-athetoid movements are frequently seen. The choreiform movements may be associated with movements elsewhere in the body. Lateral curvature develops rather late in the disease, and is associated with paralysis, muscle spasm and contractures. The mentality is unaffected in some cases, though others show degeneration of the mental powers and epileptiform seizures. Less common symptoms are vertigo, headache, a vacant expression, optic atrophy, ocular pareses, and attacks of unprovoked laughter. In general the disease resembles Friedreich's ataxia, but there are points of difference. The general symptoms of the disease appear later, and when they occur may mask the earlier ones. The question of tendon reflexes, which has led to great discussion, depends on the duration and extent of the disease. Taken alone they are of no value. The anatomical lesions consist in an atrophy of the noble elements in the cord and cerebellum, and an increase of the glia in the affected areas. The regions most affected in the cord are the columns of Goll and Burdoch, Clarke's column, and the pyramidal tracts, especially the crossed pyramidal tracts. The direct cerebellar tracts are also involved, probably secondarily, as the result of the changes in Clarke's column. It is to be noted that the cord columns most affected are those last developed, and it is suggested that the process supervenes on a hereditary developmental insufficiency of the affected areas.

The Prevention of Summer Diarrhea.—Dr. Maurice Ostheimer, of Philadelphia, explains the prevalence of diarrhea in summer by the action of the heat, which reduces infantile resistance and promotes the multiplication of bacteria in milk. After outlining the general care of the infant during this period, the necessity of open air, cool clothes, cleanliness, properly cared for milk and proper intervals of feeding, the author gave in detail the contents of a leaflet to be distributed to mothers and physicians. He suggested instruction in the schools, especially the high schools, of matters relating to infant hygiene, and also proposed that the milk commissioners, now present in several cities, should be increased in number. He voiced the idea that a model dairy, under the city government, and a milk modifying plant which would sell to the poor at cost should be established in every city. He condemned wholesale Pasteurizing, as the number of bacteria in milk actually increase under this treatment; he pointed out that home Pasteurizing did not have this effect. The remainder of his paper, dealing with the details to be brought out by his educational pamphlet, does not lend itself to abstracting, but should serve as a model for those interested in promulgating such methods.

A Study of Fifteen Cases of Diarrhea in Children.—Dr. John C. Cook, of Chicago. The material studied by Dr. Cook consisted of the diarrhea cases observed at the Jackson Park Sanitarium, Chicago, during the summer of 1904. Of the fifteen cases, eleven were mild and four fatal. The symptomatology was the usual one, fever ranging from 99 to 105 degrees Fahr., vomiting and diarrhea. The fatal cases showed mixed infections, as would be expected, and the pneumococcus was mainly involved. In the discussion Dr. Michael, of Chicago, stated that of 119 cases recently studied in that city, 80 cases showed the Flexner-Harris type of *Bacillus dysenteriæ*. Clinically the cases could be divided into those with predominantly toxic symptoms and those with local symptoms of ileocolitis and mucus and blood in the stools. The *Bacillus dysenteriæ* was isolated from both classes of cases, especially the ileocolitis, but some cases of ileocolitis did not show *Bacillus dysenteriæ*. Dr. Cook, in the discussion, called attention to the fact that both vomiting and the passage of feces were especially apt to occur when the fever was at its height.

Typhoid Fever in Children.—Dr. William J. Butler, of Chicago, read his paper in abstract, on account of its length. After reviewing the historical aspects of typhoid fever in children, the author summarized the results of his study of 210 cases. The usual description of the disease in children was given, and several points were emphasized. The writer's cases seemed to show a relation between vomiting and hemorrhage, especially in cases in which vomiting existed from the first was hemorrhage apt to occur. The appearance of the stools in very young children was not so characteristic as in adults, though in older children pea soup stools often occurred. A preliminary constipation was shown to have no evil significance, as has sometimes been claimed. Rose spots occurred in 54 per cent. of all cases, and herpes in three cases, though two of these had complications. The average duration of the fever was 17 1-3 days, a much shorter period than is usual in the adult. The usual parallelism between the pulse and the temperature was not present in very young children. The characteristic leucopenia was present and the Widal occurred in nearly all cases where it was tried sufficiently after. Relapses were more frequent than in adults, especially in girls. The mortality in his cases was 5.2 per cent., and was twice as frequent in relapses as in original attacks.

Pneumonia in the Young.—Dr. Edward F. Wells, of Chicago, based his paper on an analysis of 30,025 cases and 225,642 deaths, collected from his own services and the literature. The paper was partly statistical, and this portion did not lend itself to abstract. It was shown that pneumonia occurs most frequently in early childhood, less frequently from ten to thirty, and oftener from thirty to fifty-six. The mortality of the disease, however, is only moderate in early childhood, reaches its lowest level between the ages of ten to twenty years, gradually advances between twenty and fifty years, and then rapidly rises. Children may have the disease at any age, though the new born are least liable. Newly born children have no pneumococci in the throat, and do not contract pneumonia until after they acquire them. The usual clinical picture of pneumonia in children was painted, and stress laid on the difficulty of detecting the physical signs. A good deal of stress was laid on the percussion dullness, the diminished breathing and the crepitant râles. Friction was said to be infrequent, and the unusual location of the early dulness emphasized. Dr. Wells believed that the mortality is much lower than is usually stated. The treatment of the disease he considers an art. There is no specific. The treatment he recommended was common sense,

fresh air or oxygen if necessary, the avoidance of exhaustion, tepid sponge baths, followed by alcohol rubs, the free administration of water, and good nursing. Medicinally a reliable tincture of digitalis was recommended early in the disease, with caffeine or adrenalin as indicated. In the discussion which followed Dr. Cotton, of Chicago, advocated the introduction of normal salt solutions by hypodermoclysis, enteroclysis or intravenous injection. Dr. Wells opposed any but very careful use of this method, on account of the absence of reliable data concerning the action of chloride of sodium and the danger of an excess of fluid throwing too much work on the right heart. Dr. Morse emphasized the difference between the infant and the child in pneumonia, the disease being frequently fatal in the former and usually mild in the latter. He also spoke of the frequency of abdominal pain, the importance of fresh air, and emphasized Dr. Wells' caution as to the use of salt solution.

Pleural Effusions in Children.—Dr. C. F. Wahrer, of Fort Madison, Ia., read a practical, commonsense paper, emphasizing certain points in connection with pleural effusions. He commented on the fact that it was frequently overlooked, generally on account of insufficient examination. Often is it wrongly diagnosed pneumonia; nine-tenths of all cases of pleural effusion in children are due to pneumonia. The effusion is usually prevalent in children under three, and such cases, the untreated cases, usually die, and the properly treated usually recover. Dr. Wahrer emphasized the necessity for early diagnosis and early surgical intervention. Aspiration is often sufficient to effect a cure in serious cases, but in purulent effusions evacuation by the knife is necessary. This can be done in ordinary cases by any general practitioner.

The After-Effects of Diphtheria on the Heart.—This was the paper of Dr. Franklin H. White, of Boston, Mass., and was read by the Secretary, Dr. Snyder. Dr. White stated that while the effects of diphtheria on the heart and its nerves during the disease was well known, the after-effects on this organ were less well known. While moderate disturbances were common, severe ones were relatively uncommon. The cases studied to form the basis of the paper consisted of 78 individuals who had been treated during the attack at the Infectious Department of the Boston City Hospital. The cases were followed for from five months to a year after they left the hospital. Excluding babies, one-third of the cases which left the hospital had at their exit rapidity of the heart's action (100 to 120), one-third had irregularity of the heart, and a considerable number had heart murmurs. Only those in which the heart was known to be unaffected previous to the disease were considered. It was found that 90 per cent. of diphtheria cases have some cardiac trouble. The most common lesions are irregularity, rapidity, hypertrophy or valve insufficiency. Most of these cases gradually recover; the recovery occupying on an average four months' time. Some clear up after six months or even after a year. A fair number prove to be permanent. As a rule those patients who have had the severest attacks of pneumonia recover most slowly. The cardiac signs generally develop in the first or second week of the disease. Mild cases require a week's rest in hospital after the attack. More severe ones two weeks and the severest three weeks. In general the cases show no marked signs of heart disease, often only some palpitation and dyspnea after exercise. Often murmurs develop after discharge from overdoing by the patient. The murmur commonly heard is a mitral systolic, often transmitted to the axilla, associated in many cases with an accentuated pulmonic sound and hypertrophy of the heart. The author regarded some of these cases as purely functional, some as instances of relative mitral insufficiency from dilatation, and a few as true endocarditis. Some cases show pallor, weakness, rapid pulse and palpitation. Many of the cases clear up rapidly but seven per cent. still showed signs after many months. The author lays stress on the treatment of rest in bed, the length of time depending on the character of the case, tonics and the avoidance, after the patient is up, of overexertion. Even mild cases should be carefully watched. In the discussion it was generally conceded that since the antitoxin treatment of diphtheria heart complications are more common, but it was emphasized that this was not due to the antitoxin.

Dr. Fairbanks, of Boston, suggested that this fact was due to the recovery under antitoxin of many severe cases, which would have died before antitoxin days. He also emphasized the value of Schott methods in these cases.

The Management of Children with Typhoid Fever.—Dr. W. C. Hollopeter, of Philadelphia, said that a subtitle might be "A Plea for Enteroclysis." He pointed out that early diagnosis of this disease in children was difficult on account of its atypical character. It might be confounded with enteritis, pneumonia, meningitis, or auto-intoxication. The diagnosis could seldom be made before the end of the first week and the Widal and diazo tests are of little value before this time. There is no specific treatment. The indications are to reduce the toxemia and control the temperature. The patient should be in a large room with plenty of fresh air, there should be a preliminary dose of calomel and the colon should be irrigated daily. The enteroclysis both removes toxins and lowers temperature. A tepid sponge bath should be given night and morning, and the hygiene of the nose and mouth is important. The diet suggested was peptonized milk alternating with albumin water. The peptonized milk is rendered more palatable by adding carbonated water. Orange and lemon juice should be given. Water to be given freely was also advocated. Recumbency and liquid diet are necessary for ten days after convalescence. The ice cap to the head and hot water bottle to the feet were recommended in hemorrhage and cold or ice enemata.

Report of a Case of Imperforate Rectum, with Absence of Anus.—Paper read by Dr. Edward H. Small, of Pittsburg, Pa. The case reported by him was a fifth child, born in the R.O.A. position and besides the absence of anus, had a phimosis, and webbing of the second and third toes on each foot. There was also a sacral dimple. The site of the anus was punctured with a trocar one-fifth inch in diameter and this was introduced along the normal course of the rectum until a sudden lack of resistance showed entrance into the bowel. This was two inches from the perineum. Meconium flowed and the bowel was washed out. Digital dilatation revealed the rectum which was firmly attached laterally. Subsequently the case was treated by daily bowel washing, digital dilatation for eleven days and later catheter dilatation. This treatment was continued for two months, at the end of which time the rectum had descended nearly to the anus and there was a good sphincter higher up than normal. The author expresses pleasure at his success in this case but would in future employ the open method as the use of the trocar is dangerous. The peritoneum may be punctured and fatal peritonitis result.

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ORIGINAL ARTICLES.

THE BACTERIAL CONTENT OF THE RAILWAY COACH.[1]

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DURING the year of 1896, while the writer was in charge of the Hygienic Laboratory of the Marine Hospital Service, certain experiments were made with a view of determining the value of formaldehyde gas as a disinfecting agent for the railway coach. Results were soon so promising that it was determined to make a thorough trial of this agent in a practical way to see whether it could not supplant the methods then in vogue, as these were far from being satisfactory, these methods always resulting in damaging or destroying the interior of the coach so that a complete overhauling and refurnishing was the rule. This was, of course, a very expensive procedure, and it was to be expected that the railway companies would oppose such disinfection. As a result disinfection was not resorted to as often as it would have been otherwise.

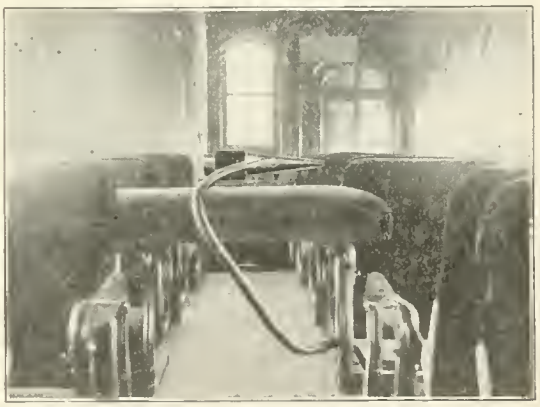
The above inquiry naturally led to an examination of the bacterial content of the railway coach. Accordingly communications were sent to the several railway companies whose lines centered in Washington, and subsequently to other lines, requesting their cooperation and assistance covering these points. All facilities for these examinations were freely granted, not only at Washington, but at many other places as well.

In view of the fact that it was a growing belief that the railway coach was one of the chief agencies in disseminating tuberculosis, it was deemed advisable to make this the prominent feature of the inquiry, and determine this first as a preliminary to a more comprehensive study. When this investigation was begun it was the intention to continue the observations over a sufficient length of time in order to include as many of the conditions as possible which affect the sanitary condition of the passenger traffic, but many lapses occurred which were unavoidable. These were chiefly due to other official duties, and on account of this many of the samples collected were not examined. These should have been included so as to make the report more complete. These unavoidable interruptions also caused the inquiry to be continued over a longer period than would have been otherwise, but notwithstanding these, it is believed that the observations so far as made are fairly representative of the sanitary conditions found in the railway coach at the time the examinations were made.

The examination included: (1) The bacterial content of dust from carpets; (2) the bacteria obtained from the interior furnishing of the coach; (3) the bacterial content of the air of the coach; (4) the bacteria of the drinking cup; (5) methods of cleansing the railway coach; (6) observations on the health of employees.

Bacterial Content of Carpet Dust.—Samples of dust from the carpets were collected usually at the cleaning stations where they were removed from the cars for the purpose of cleaning. In a few instances dust was collected from the carpet in the coach just after sweeping. The method of collecting such samples was as follows: A special apparatus with an anemometer attached was placed in the car or room near to where the carpet was either being swept or cleansed by

Fig. 1.



Showing apparatus arranged for collecting dust from carpets, etc., in the interior of car.

beating or compressed air, a certain number of cubic feet of such dust-laden air was aspirated through the apparatus, so that the dust was caught on sterilized glass wool, in such an apparatus as is shown (Fig. 1). This was then placed in a sterile container, taken to the laboratory for examination. The amount of air aspirated through the sterilized glass wool was on an average of 200 cubic feet. Some of these naturally contained more dust than others, depending upon the filthiness of the carpet. Most of these samples were collected at the terminal stations because of the superior facilities existing there for collecting them. Seven samples of such dust were collected from November, 1896, to February 28, 1898. All of these were from Pullman cars. Three of these had just returned from a trip to the South, one from Tampa, Fla.; one from Jacksonville, Fla.; one from Nashville,

[1] Read before the Section of Hygienic and Sanitary Science, of the American Medical Association, at its meeting at Atlantic City, 1904.

Tenn. (via Asheville); one from Cincinnati, Ohio; one from St. Louis, Mo., and two from Buffalo, N. Y.

As soon as possible after collection, the containers containing the samples of dust were treated with a given amount of sterilized water, and a suspension of the dust obtained. This was centrifugalized for five minutes to remove the larger particles of coal dust, sand, etc., and then afterward again centrifugalized for sedimenting the finer particles for a microscopical examination and for animal inoculations. The microscopical examination made of the dust of these samples showed a variety of substances; particles of coal, sand, vegetable fiber, epithelial cells, yeasts, molds, bacilli and cocci. Five c.c. to 10 c.c. of this precipitate was injected subcutaneously in the axilla of guinea-pigs. Two pigs were used for each experiment. A careful examination of many stained specimens from each sample for the tubercle bacillus was always negative. The number of bacteria per cubic foot ranged from 2,800 to 20,000 and over. These were of many varieties, but principally those observed in the air. Only a few pathogenic forms were encountered: the pneumococcus, *Staphylococcus pyogenes aureus*, streptococcus and the colon bacillus. Only the pneumococcus thus isolated was pathogenic, and this slightly so.

The results of the animal inoculations for these samples of dust, were as follows:

Sample from car 1, caused a pneumococcal infection.

Sample from car 2, one pig died of an acute abscess, from which the staphylococcus was isolated; the other pig was dead at the end of two months from a progressive emaciation, negative.

Sample from car 3, caused a staphylococcal infection.

Sample from car 4, negative at the end of four months. Animals gained in weight.

Sample from car 5, one pig dead from a septicemia at the end of two months (probably an intercurrent infection).

Sample from car 6, negative at the end of six months.

Sample from car 7, caused an acute staphylococcal infection in one animal, another negative after seven months.

Dust from the Interior Surfaces of the Railway Coach.—Samples of dust and other material were collected from the surfaces of the seats, bedding, curtains and woodwork by means of a swab. This swab was made of absorbent cotton firmly attached to a stiff bronze wire, and moistened with a 5 per cent. solution of glycerin, placed in a large test tube and sterilized just before being used. These swabs were rubbed over the surfaces of the seats, woodwork, bedding, etc., where it was thought possible for the tubercle bacillus to have lodged. Not less than 15 square feet was thus treated, usually as much as that contained in a section of the sleeping car, was the rule.

Samples were examined at the laboratory as soon as possible after collection. The methods employed were, each swab was transferred to a flask containing 100 c.c. of sterilized distilled water and allowed to soak therein for several hours, being occasionally agitated, after which the water was expressed and the resulting suspension centrifugalized, the sediment collected for microscopical examination and for animal inoculations.

A microscopical examination of these samples showed them to contain various bacteria, epithelial and pus cells, coal, sand, vegetable fiber, hair and feathers. Numerous specimens from samples were also stained and examined for the tubercle bacillus, and in two instances bacilli resembling morphologically and tinctorially the tubercle bacillus. There seemed to be but little doubt as to these being tubercle bacilli because they were not decolorized by strong nitric acid and alcohol, although this was not verified by animal inoculations.

Thirty-four railway coaches were examined in this manner, 29 Pullman sleeping cars, 3 day coaches, and 2 smoking cars. These cars were not confined to any one part of the country, but comprised those used on roads from New York to Tampa, Florida, North to South, and West as far as the Mississippi. Eleven of these were running to health resorts and places frequented by tuberculous patients. The examination of these were made at times when the travel to these places was at its height, and when to the writer's personal knowledge many cases of undoubted tuberculosis were occupying them.

Sixty-four animal inoculations were made from all these specimens with the result of positively identifying the tubercle bacillus only in one instance. It was thought to be present in one other, but this could not be confirmed by subinoculations in other animals. The pneumococcus was found in 5 instances, pyogenic streptococcus in 2, the staphylococcus in 2, colon bacillus in 2, hemorrhagic septicemia in 6, malignant edema in 1, streptothrix in 1, diphtheria bacillus in 1; the remaining 43 examined were negative and no pathogenic organisms were encountered.

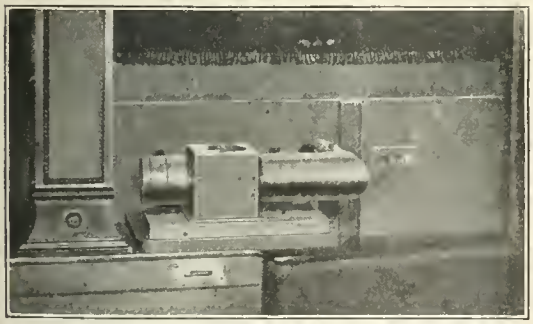
With regard to the one instance in which the tubercle bacilli was positively identified by subinoculations into other animals, this was a car which had run between Jersey City and Charleston, S. C. Its history was to the effect that many cases of tuberculosis had been carried to the southern health resorts on prior occasions, but none so far as could be ascertained were carried on this particular trip immediately after which the dust was collected. The other case, in which there is a doubt, came direct from Tampa, Fla., being returned empty to Jersey City as a "deadhead." No further history was obtainable. An inspection showed what appeared to be several spots of inspissated sputum on the cushion and on the carpet, about where the cuspidors are

usually placed. A microscopical examination made of these spots showed it to be sputum, but no tubercle bacilli could be identified. The animal inoculations made with the precipitate from this dust killed a guinea pig within 2½ months. On section there was found a small or circumscribed abscess in the axilla where the injection had been given, which to all appearances was tuberculous. Direct examinations made of the pus and histological examination showed bacilli, which in their morphology and tinctorial properties were identical with those of the tubercle bacillus. Careful examination made of all the organs for tubercles was negative. Subinoculations made with the tissue and pus from the abscess did not cause tuberculous lesions. Possibly this may have been tuberculosis, or on the other hand, it may have been one of the acid-fast bacilli, which possesses little or no pathogenesis. Yet their behavior to nitric acid and alcohol was identical with the controls made with cultures of the tubercle bacillus.

Bacteria in Air of Coach.—Pathogenic bacteria floating in the air is relatively of greater importance in disseminating disease than those fixed in the cushions, bedding, etc. It was first attempted to determine what relation the pathogenic varieties bore to the whole number present in a given amount of air, and then afterward what was the ratio between the number and that of passengers. The data obtained was not of such a character to be of any value in determining this on account of the many factors entering into the ventilation of the coach in transit.

Dust from the air was collected by means of a special apparatus (Figs. 1 and 2) by which the air could be aspirated from the coach when in motion.

Fig. 2.



Showing apparatus placed in position in car window for collecting dust.

The apparatus was placed whenever possible in one of the windows in the rear of the car, and varying amounts of air aspirated through it. The dust and bacteria were caught on sterilized glass wool contained in metal cylinders, the same as for collecting dust from carpets. Dust from 48 coaches was collected, and this was taken to the laboratory and examined.

The amount aspirated from each varied from 1,500 to 7,200 cubic feet. Twenty-seven of these were on runs to or from places in the South, where tuberculous cases go and one to Colorado Springs. The number of passengers was noted so far as was possible during the time of the collection of the samples. The number varied greatly. In some instances only two or three, while in others it was 24. The number, however, does not give an adequate idea of the total number occupying a coach during its trip. This is particularly so in coaches running between New York and the Southern cities, where it is not unusual to observe the greater part of coach population change two or three times before the end of the journey, only a small proportion being through passengers. It was also attempted to obtain information from the Pullman conductors, relative to the number of persons using such coaches during its whole trip, but on account of the unsatisfactory and fragmentary character of this data, it was not of sufficient value to be included. There were observed in the coaches under examination many cases of undoubted tuberculosis, and not a few of these were evidently suffering from the disease in its excavatory stage.

Fig. 3.

Showing aspirating device outside of car window.

Microscopical examination of the sediment obtained after centrifugalizing the watery suspension of the dust revealed particles of coal, sand, vegetable fiber, wool, cotton, epithelial and pus cells, yeasts, bacilli and cocci. A careful search made for the tubercle bacillus was negative in all instances. Plate cultivations made from several samples demonstrated the number of bacteria of each cubic foot of air ranged from 225 to 5,200; the number did not appear to bear any definite relation to the amount of dust, nor to the number of passengers. The colonies developing on these plate cultivations were those of yeasts, molds, streptothrix sarcinæ, micrococci

and bacilli. The pneumococcus, streptococcus, *Staphylococcus pyogenes aureus*, the colon bacillus and of hemorrhagic septicemia were isolated and studied.

The majority of the bacteria found in the air evidently had their origin, as would naturally be expected, from the outside air. Control experiments were made on several occasions contemporaneously with those made with car air, demonstrated the bacteria to be the same, with the exception that no pathogenic varieties were encountered, save the colon bacillus, which was isolated from the outside air in three instances; in two of these tests it was also isolated in the air of the car.

Ninety-six animal inoculations were made from these which gave the following results: Tuberculosis 1, pneumococcus infection 8, staphylococcus infection 4, general septicemia 5, malignant edema 1, negative 76.

The sample of dust which caused tuberculosis was collected from a Pullman car which ran between Tampa and Jersey City. It left New York on June 19, having an average of 10 passengers *en route*. The car was said to have been cleaned at Tampa. On its return trip it had 8 passengers from Tampa to Washington. The car was very dusty. 2,112 cubic feet of air was aspirated between Washington and Jersey City. A guinea-pig inoculated with a suspension of dust from this car was dead in four weeks after inoculation. Post-mortem examination showed pneumonia of both lungs due to *Streptococcus pyogenes*. There was also a caseous gland, somewhat enlarged, in the right axilla, at the point of inoculation, which contained bacilla resembling that of tubercle. The histological character was typical. This gland was emulsified and injected into other pigs. One of these died in four weeks after inoculation, and on section showed enlarged gland in the axilla which was caseous and contained tubercle bacilli. The retroperitoneal glands were enlarged and cheesy. Miliary tubercles were found in the spleen and liver.

The greatest number of pneumococcal infections from the air was obtained from the smoking cars. The air from the day coaches was negative in every instance. Observations of a similar character were also made on 39 other coaches which are not included in this report because of accidents either happening to the samples at or soon after their collection, or the time intervening between their collection and examination being so long as to vitiate their value, so these were omitted.

Bacteria of the Drinking Cup.—A bacteriological examination of 21 specimens obtained from the drinking cup of a Pullman coach demonstrated the pneumococcus 1, streptococcus 1, pyogenic staphylococcus aureus 1 and diphtheria bacillus 1. The pneumococcus was only slightly pathogenic, the streptococcus and and staphylococcus not at all, but the diphtheria bacillus caused the death of a 300 gram guinea-pig in less than four days. Subcultrues were recovered from the animal and made the subject of further study. While the number of pathogenic organisms isolated from the drinking cup is not large it is evident that it is one of the means of disseminating disease. It is suggested that some other arrangement should be made by which individual drinking cups at a small cost could be supplied in each car.

Method of Cleaning Passenger Coaches.—The methods vary considerably according to the time and place in Jersey City, where perhaps the largest number of cars are cleaned, the methods in vogue at the time of making these observations, were essential, as follows: (1) The carpets were removed by rolling them in bundles, and then taken to the cleaning shed. (2) The seats, cushions, pillows, mattresses and blankets were removed to a shed alongside the car, where they were beaten, dusted and aired; (3) men go through the car and dust all portions, including the upper berths, with feather dusters, immediately after which the upper berths are closed; (4) the charwomen wash the woodwork and glass with lukewarm water and castile soap.

The carpets after being taken to the cleaning shed, were placed on an elevation, which was covered with a heavy wire of about 6-inch mesh. These were then beaten with the ordinary carpet duster. Quite a number of the carpets, however, were cleaned by means of an air blast, the carpets being laid flat upon the floor and the apparatus conveying the blast of air passing over them. This seemed to take out the greater portion of dust, and was superior to the hand beating process. The rugs, particularly those of the smoking compartments, were, if badly soiled, washed with soap and water and then dried. After the carpets were thus treated they were replaced; the mattresses, pillows and bedding following.

The cars cleaned in Washington and Jersey City were treated in this way every other trip, being only swept at the end of each run. Those from Chicago, St. Louis, Jacksonville, Atlanta, Birmingham, Ala., and New Orleans, were cleaned every round trip.

The dusting of the bedding was done alongside the car. Many times this was done fairly well, but at many other times, particularly late in the afternoon or when the weather was damp or raining, they were not cleaned as well as they might be.

The same method was practised in Philadelphia, Washington, Chattanooga, Tenn., Asheville, N. C., and Jacksonville, Fla. (With regard to these latter it was usually done in the open air, the carpets being removed to a wire-covered rack and beaten; while the mattresses, bedding, curtains, etc., were taken out, shaken, sometimes beaten and usually exposed to the bright

sunlight for several hours. Strange as it may seem, the bacterial content of the bedding and carpets treated in this manner gave fewer bacteria than those in the car yards of Jersey City.

Compressed air was not in use at Jacksonville, nor at many places in the South. The objection urged against the use of compressed air at this place was that it seemed to cut out the pyle of the plush very much more rapidly than the process of hand beating, as there was so much sand always in these cars.

At St. Louis, Mo., the cleansing by the air blast had just been introduced. The car and its contents, with the exception of the carpets, was cleaned in rather a crude manner, too much confidence being placed in the air blast, and too little attention paid to the method of application. For example, attempts at dusting these cars were made by throwing a blast of air into the car with all windows and ventilators closed. This only resulted in setting free a cloud of dust, which afterward settled on the woodwork and cushions, which were not to be removed, except by a slight dusting.

The day coaches, particularly those of the Pennsylvania and Southern Railway companies, were cleaned far better than those of the Pullman Company, at least the examination of the dust after such cleaning showed a fewer number of bacteria than was always found in the Pullman coach.

The application of the air blast appears to be the best suited for this work. With due care in its application a greater amount of the dust from a car can be removed.

Health of Railway Employees.—In view of the fact that there seems to be a relation existing between the quantity of dust in the coach and septicemia produced by it in animals, and more particularly so with regard to the pneumococcus, a short notice regarding the health of the employees engaged in the cleansing and renovating these coaches would not be out of the way.

This was inquired into rather extensively at the car-cleaning sheds in Jersey City, where the major portion of the coaches east of the Mississippi are cleaned. Also inquiries of this character were made at Washington, Asheville, N. C., Chattanooga, Tenn., Jacksonville, Fla., Kansas City and St. Louis, Mo.

Many persons engaged in this employment are what might be called "transients," only taking service for a short time, or at irregular intervals. Little or no information could be obtained from those in charge of the work, about the health of these individuals, although none could recall an instance where any of these were "laid off" for any length of time on account of illness, and no history could be obtained with regard to them having been ill with cough or "lung fever."

There were, however, a respectable number of employees who had been constantly engaged in cleaning these coaches for a number of years. Three in the carpet-cleaning room, where nearly, if not all, of the carpets are cleaned by the hand-beating process, or by compressed air. Two had been engaged in this work for five and three years respectively, and another two years. All were present and at work at the time of inquiry and were to all appearances in good health. None had been sick, save with an occasional cold, which did not stop them from working for more than a week. No precautions of any character whatsoever were observed by those employees while engaged in work of this character. The room was constantly surcharged with dust and faces were blackened with it, but notwithstanding this they seemed to suffer no discomfort. Possibly these persons may have become immune(?).

No history of illness of any kind, suggestive of lung affection, could be obtained from the scrubbers, or those who engaged in beating and dusting cushions and bedding. The conductors and porters of these Pullman coaches were an exceedingly healthy lot. No one who was interviewed gave history of tuberculosis. Statements were made by these, however, that they knew of certain of their former number who had become ill from consumption, making it necessary for them to leave the service. Only three reports of this character, however, were obtained. Another instance of this kind came under the writer's observation, and that was a porter on a Western road.

As there seems to be a growing fear of tuberculosis among this class, and I have noticed, even at the time when these observations were made, and subsequently thereto, that a great deal of care was exercised by them in keeping the cars in good condition, particularly so if tuberculosis patients were passengers.

Ventilation of Coaches.—A number of anemometer readings were made for the purpose of determining the ventilation of these coaches. These were made in the top of the car, near the ventilators in the coach, on a level with the top of seats and also upon the floor. The data obtained was very unsatisfactory, and many times contradictory. Sometimes it would appear that the amount of air rushing out of the car was sufficient to change the whole content within a few minutes; at other times there appeared to be little or no ventilation, and particularly was this so on the level with the top of the seats. Here there was more or less movement of the air, due to the opening of the ventilators, windows and the doors.

After making quite a number of observations of this character, the writer became convinced that they would be of little value in determining this point, consequently they were abandoned. It then occurred to us to use some volatile substance, like ether, containing a volatile odor, and by spraying this at a given time in the for-

ward part of the car when the train was in motion, and then determine at what time the odor could be detected; this was done under many conditions. This test is admitted to be very crude, but it gave some idea of the ingress and exit of air. The shortest time in which the odor disappeared was seventeen minutes, all ventilators on one side open, also two windows partly open; the longest time was thirty-five minutes, three ventilators open. The interchange of air was many times greater in the upper third; here the odor was not appreciable after five or ten minutes.

Check observations were made by observing the time when a car became free from smoke, when suddenly filled, as for example after passing through a tunnel. This confirmed very closely to those made with volatile scents. Bisulphide of carbon also suggested itself as being an agent par excellence, but it was deemed advisable to employ it after an unexpected experience one night in Western Kansas. The writer was one of twenty occupants of a Pullman sleeping car. All the lower berths, and a few of the upper, were occupied. Four ventilators were slightly open. Just as the train was backing off from a siding, it came in contact, or in close proximity to a skunk. The air of the car was immediately surcharged with a most noisome odor. Everybody began to cough and ring for the porter, with frantic appeals to open doors, windows and ventilators. This was done as fast as circumstances would allow, but notwithstanding this it was at least thirty-five minutes afterward before order was obtained, but the odor did not disappear for an hour. On the following morning an examination showed that the truck on the rear car, the one just back of the one occupied, still smelled strongly of the odoriferous principle of the skunk, so it is safe to say that some of the outside air being surcharged with the odor was carried into the car and remained there at least an hour, if not longer.

Quite a number of improvements have been recently made in the ventilation of the railway coach, but it is yet far from being satisfactory. Particularly so with regard to the Pullman sleeping car. One of the most notable improvements in the ventilation of the passenger coach is the system now in use of the Pennsylvania Railroad Company, but it only applies to its day coaches. This system as devised is believed to be as nearly perfect as it can be made, without resorting to a mechanical forced draught. Unfortunately, this system as good as it appears to be for the day coach has not been considered practical for the ventilation of the Pullman car, in fact, it is doubted whether it could be applied, unless the interior of such coaches would undergo a complete rearrangement.

Perhaps a clearer idea may be conveyed in the following summary of the results of the animal experiments:

	Carpet dust.	Swabs.	Air.	Drinking Cup.
Negative,	8	43	76	17
Pneumococcus,	2	5	8	1
Staphylococcus pyogenes aureus,	3	2	4	1
Streptococcus pyogenes,		2	1	1
Bacillus tuberculosis,		1(?)	1	
Streptothrix,		1		
Colon infection,		2		
Diphtheria,		1		1
Septicemia,	1	6	5	5
Malignant edema,		1	1	
	14	64	96	21

Of the 196 animals inoculated with suspensions of dust obtained from the carpets, surfaces of the cars and from the air of cars it will be seen that 73 per cent., or 144 of these were negative. The largest number were those inoculated with dust from the air. Including those in which the tubercle bacillus was positively identified there remains 21 per cent. of the animals which died of affections other than tuberculosis. Possibly there were some animals included in this number, which may have died of tuberculosis, or of diphtheria, but were killed by a rapid infection. If this is so, the percentage for tuberculosis and diphtheria may be increased. In view of the fact that a considerable number of the animals died very early after inoculation many more such experiments must, therefore, be made before we can arrive at a final conclusion.

The above observations and experiments are submitted for whatever value they may be in adding to our knowledge of the sanitary status of the railway coach. There is no desire on the part of the writer to draw any hard and fast conclusion from the above experiments, for he believes that the data herein submitted is not sufficient to warrant this. Therefore, many other questions regarding the sanitary condition of the railway coach must be solved before its actual condition is known. The only fact which seems to have been proven in this investigation that as much as 73 per cent. of the animals inoculated were negative, thus demonstrating that the bacterial content of the railway coach in the majority of instances examined was not infectious to animals.

The writer wished to continue this investigation in order to cover these lapses, and representations were made at the time when these observations were suddenly brought to a standstill, that the inquiry should be continued much further before sufficient data was collected to settle these points, but he was informed that the investigations had advanced sufficiently to show the conditions of the railway coach, and it was not deemed advisable or expedient for him to pursue the subject further. Notwithstanding this adverse action it was the intention of the writer to continue this at some future time, but so far this opportunity has not presented itself.

It is to be sincerely hoped that these few experiments and observations, few and fragmentary in their nature, will serve as a stimulus for further investigations in this important subject, and that proper authorities, either state or national, preferably the latter, will take up this work on this or other lines and furnish the much-needed information. Probably this may be done, as I am credibly informed that the Public Health and Marine Hospital Service now considers some further investigations are necessary to be made regarding the sanitary condition of the railway coach. The writer hopes that this is true.

In closing acknowledgments are made to the various railway officials for the many courtesies and cooperations the writer has received from them, to the Pennsylvania Railroad Company, the Southern Railway and the Pullman Car Company, to whom special acknowledgments are due, and also to my colleague, Dr. Ezra K. Sprague, late Assistant Director of the Hygienic Laboratory, who assisted me in this work.

THE CURE OF LEPROSY.[1]

BY ISADORE DYER, PH.B., M.D.,
OF NEW ORLEANS, LA.;
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"And the leper in whom the plague is, his clothes shall be rent, and his head bare, and he shall put a covering upon his upper lip and shall cry "Unclean, unclean." All his days wherein the plague shall be in him, he shall be defiled; he is unclean. He shall dwell alone; without the camp shall his habitation be." (Leviticus, xiii: 44.)

WHEREVER, in historic reference, levitical guidance, holy appeal, or in divine interference, remark of leprosy has been made, the leper has been indicated as a morbid element in the field, and in Mosaic, Talmudic of Mohammedan law the victim of the disease was always classed among the living dead.

Small wonder that the humanitarian evolution in centuries of material progress should have cast aside even the slightest attempt at remedying more than the evil of the existence of the disease; and that this should have been only arrived at through the crudest and most barbaric methods.

Here and there in the modern world some desultory charge was taken of leprosy, at times directed at the care of the afflicted, but more for the protection of the public. Wherever, however, a leper came into existence, there was hardly more than a casual interest excited, or a bit of passing pity for the immolated.

So long as the epochal story of leprosy is told, and so long as the world finds time to listen to the dramatic theme, the name of the Belgian martyr priest, J. Damien de Vuester, must ring out in no uncertain tones. He was called by an inspiration to a solemn duty, which he fulfilled so well that with the word "leprosy" to-day the name of Father Damien sounds an echo. Unconsciously he worked out the signal which the time demanded: First, the world needed to be aroused to the conditions, and second, that only by his trying the hope of the leper might be awakened to a thought of better things amid the chaotic inaninity of their state of neglect and abhorrence at the hands of the rest of mankind.

With Father Damien's death in 1889, the thought of leprosy was spread throughout the world. The public prints heralded the exit of the priest and noted what had been done by him. The genesis of modern views of the disease so far as its care and treatment are concerned date from this time.

The British government in 1890 and 1891 located a qualified commission in India to investigate the disease. The death of Damien, as a statement in the introduction to the report of this commission affirms, was responsible for this step. "His martyrdom did not appeal in vain to humanity." The report of this commission was widely disseminated and excited a similar study of leprosy wherever the disease was found. Desultory reports followed, until the interest of the whole world centered and was crystallized in the Berlin Leprosy Conference in 1897.

A large opportunity of research was opened up. Even those living in leper centers differed as to the method of spread of the disease. When the real purposes of the aggregation of nearly two hundred men appeared, the mighty step forward began to show itself. That gathering lifted the whole atmosphere of leprosy out of the beclouded bigotry of uncharitable medievalism into the broad light of a humanitarian civilization. More than that, it demonstrated the need of considering leprosy as a combatible evil, and it approached, with stern argument and pure wisdom and reason, the avenues leading not only to the control of the disease, its future prevention, but even the probable cure of the fell malady.

Among the facts deduced were the actual numerical occurrence of the disease; the hardihood of many observers in their patient pathological investigations, resulting in the demonstration of the germs in every organ of the body, the measures already in vogue in many countries, the absolute denial of heredity in the etiology of the disease, and a better argument for contagion as the cause.

More than this; sufficient argument was brought to bear to make it almost certain that the channel of entrance of the contagion was through the mouth and nose. Since 1897, the work has gone on. Enlightened care of the disease is now practised the world over.

The ignorance of the profession with regard to the disease, the general indifference of the public and the fear of the leper himself have all

[1] Read before the Texas State Medical Association, Houston, April 27, 1905.

helped to prevent a better care or a better knowledge of this disease.

Popular conceptions of leprosy have been entirely derived from scriptural interpretations. Graphic as it is, the impressionist picture which Lew Wallace presents in "Ben Hur" is far from the actual state of the leper. Mosaic law defined the disease and classified types which to-day we know to be different diseases, some of them not leprosy at all. The "white scaling leprosy," the "leprosy of open sores," were the one a mild innocuous skin disease, the other only the common "seven years' itch." True leprosy is described in the Bible, however, and sufficiently so to have led to its more exact study.

To-day the exact types of the disease are known and recognized. In older countries, as in the Orient, Norway and Sweden and in China and India, where the disease has existed indefinitely, the phases of leprosy vary from insignificant markings of the disease to horrible mutilations, so transforming the person afflicted as to remove all semblance to a human form. We recognize, however, leprosy as a distinct disease, capable of exact study and determinable at the slightest evidence.

There are two general forms, that of nerve type and that of skin leprosy, both starting alike but varying as the symptoms develop. The picture of nerve leprosy is that which is the more appalling; that of skin leprosy the more horrible.

Nerve leprosy begins with small warning, flashes of eruption here and there, spots of reddish brown which come and go, small blisters on the hands and feet which either superficially form and dry leaving slight marks behind, or which leave ulcers, growing deeper and deeper until a part of a finger or a toe dries up or falls off leaving the stub behind. Sometimes there is only a loss of power in the member. The victim of the disease drops things, feels numbness of the fingers, burns himself without knowing it. Then there is contraction until the hand becomes a claw, the muscles atrophy and the flesh shrinks away, leaving only the skin and bone. Not only fingers but even the muscles of the face may do the same; the hair falls and staring eyes look out of a hairless face; the skin grows wrinkled, dry and then over bones a thinned and parchment skin covers what was once a rotund visage. The ears lose tone and hang like bits of pendulous leather on the sides of the head; meantime the gums recede, the muscles of the throat become affected, the voice first changes to a metallic note and then drops to a raucous whisper. Ulcers come on the hands and feet, and then God is merciful, the leper loses the balance of his brain control and drivels as an idiot or passes into a paretic state, softening of the brain, and he dies forgetful of the way in which the grim destroyer has snatched the brand from him, with eyes blinded and his senses stunned or bereft of the reasoning power.

Skin leprosy is more patent. Thickening in reddish patches usually, on the face and hands, as well as other parts; the skin grows tense, masking the face and giving to a skin of normal shape a fixed and tanned hue. Here, too, the hair falls, and the expression is that of a satyr, lips thickened, eyelids dense, and eyes glassy and staring in the leprous change. Here and there the masses of flesh rise above the skin forming nodose areas, some small, some large. At times these lumps, really tubercles, come fresh, in twos and threes, massing around the nose, on the ears, on the lips, and on the hands; they grow to the size of acorns, deep red and brown in color. Then they run together forming alternate nodose bands and deep depressions, almost like a perpetual smile, were it not for the fact that the everted lips and glistening teeth make the grin that of a fury. Once these bumps or tubercles reach their maximum in size, scabs start, the color becomes a deeper brown and the expression grows truly leonine, except that the eyes are furtive—staring as if in perpetual night. The voice sounds a note of nasal tone—at the same time raucous as if a high nasal note were interrupted by the filing of a saw.

How far we have come from those days when the leper found his only treatment in a sought-for surcease in the cities of the living dead: from that time when on his lip he bore the leathern thong which named him, even before he cried, "unclean, unclean." Carry the picture of the leper scourged with thorny brush until his bleeding sides begged pity or else the means to end his unwelcome life. Farther along let's draw the picture of the native of the Fijis wrapped in shrub and herb and laid upon a pyre, his blistering limbs yielding either to the loss of flesh or else giving way to death in the hope of survival. Among the South Americans even to-day the lepra victim submits his life to the bite of venomous reptiles in the hope that by this means he may recover, and, if not, that he may succumb in the process, rather than spend his life in exile.

To-day in India, Hawaii, Japan, the British Colonies, in Russia and in almost every civilized country in the world, fairly decent habitations have been provided, and in some even proper domestic and medical care. More than this, the treatment of the disease has been lifted from barbaric custom into scientific practice, and in almost every therapeutic field, serum, medicinal and hygienic, treatment has been essayed to ameliorate, and even in the hope of cure. No longer is the leper set aside to end his days in watching members, one by one, to fall away; he realizes that intelligent direction has mapped the road which leads no matter by how many turns to a possible relief. Empiricism and exact laboratory experimentations have added much to the knowledge of the treatment of this disease, and to-day we have arrived at the conclusion that here, as in any other field of nature, the combat is between the morbid and the true.

I believe leprosy is curable. I believe leprosy is curable as I believe syphilis is curable and as I believe tuberculosis is curable. There are cases of all three diseases which are only arrested and others which do not respond to any treatment and which destroy the patient in their processes.

Twenty-five years ago the victim of tuberculosis was condemned to die of the disease and the way was made easy for him. Syphilis, even to-day, is looked upon as incurable by the conservative, and yet both of these diseases, like leprosy, are self-limited diseases. According to the degree of original infection, according to the condition of body resistance and stability of the victim of the disease, any of these three diseases will run a limited course, get well of themselves, or, under conditions of life favoring a higher degree of resistance, the disease is arrested after a time. With added care and treatment, with measures directed at increasing the resistance, this may be raised to a point where the disease can no longer hold its place in the economy and the patient recovers from the disease sufficiently to be free of all evidences during the rest of his life.

Applied to syphilis, applied to tuberculosis, applied to any disease of infective type, the patient is called well of a disease when that disease presents no evidences of its direct or indirect effects after a reasonable time. With syphilis the control of all symptoms, and the failure of appearance of others, after a careful treatment, allows the acknowledgment of a cure sufficiently for the person with such an experience to engage in matrimony and to beget or bear healthy children. The freedom of all physical signs of the disease, with the evidence of a perfect general health, resulting after careful treatment and training of a tuberculous subject, demands the acknowledgment that such an individual is well of the disease.

Now, in what particular way should leprosy differ from these two? Even where leprosy stalks a fearful enemy of civilization—a curse and a blight upon the nations it destroys—the hand of horror has been raised against it to such an extent that even men of the medical profession have silently let these unfortunates go the way of their antecedents because they were unwilling to inquire into the disease or to essay methods aimed at the relief of such an affliction.

Here and there earnest workers have marked some way leading to a remedy, and wherever anything has been done, it has simply become a part of the foundation on which the present stand has been taken.

The ravages of smallpox were stopped by Jenner's discovery, and then it was ascertained that under some degree of protection this disease could be cured. The plague stands to-day as a barrier in places where the investigations of its methods have resulted in preventive measures, and I tell you that when an intelligent effort is made to treat leprosy it will fall in its natural place among remediable ills, and it can be treated just exactly as the other loathsome diseases have one by one yielded to scientific procedures.

Every disease represents the acceptance by the human economy of a foreign substance, more or less parasite upon its energy, the degree of which is directly dependent upon the ability of an individual to resist. Communities survive their evils, and races die or go on to fulfil the supreme fitness of their intention directly as they may develop the inherent and instinctive quality of resistance. Disease is a direct parallel, and each type, whether in chronic or acute forms, bears a likeness to the theory.

Leprosy begins with the acceptance in the economy of the bacillus, and if it finds a fit soil in which resistance is below the normal, it spreads, in degree, to one or to every organ in the body. Its colonists are like the people of a sturdy race, finding new fields of entry, and whenever a good location is determined, there they settle, and then next consume in their development the tissues in their vicinity until the germ survives and the tissue dies.

Remedial measures are directed at flooding the field of infection, massing an amount of tissue on which the bacillus cannot feed, but which acts as fuel for the development of normal tissue; this, aided by the natural process of nature, gradually lays siege to the undeveloped foreign tissue until this is carried off or disseminated through the organs of elimination of the human body.

That the fight is a long one must be evident because no siege was ever accomplished without well-laid plans. The tone of the patient with leprosy must be raised gradually to a point where specifics in the disease may be given, where experimentation may be allowed. Many an essay of possible success has been discounted by the failure to appreciate the necessity of beginning this in an individual prepared for the trial.

As yet there is no treatment which can be said to cure all cases of the disease, but a multitude of workers are traveling along the lines leading to the avenue of final success. Each man who works in the field where leprosy exists, has, now and then, seen a ray of light pointing to a final solution. There is no evil for which nature has provided no remedy, and it remains for some discoverer to find the one for this. Meantime a life is, here and there, snatched from the leper's fate, and whenever another is added to those already cured it means just one more signal of hope to the darkened spirit of those who live in that state which, formerly, was indeed a synonym for despair.

The treatment of leprosy must be based upon the individual case. In Louisiana we have striven with various remedies but the results have been based on the physiological state of the patient.

I saw my first case of leprosy in New Orleans

in 1893 at the Charity Hospital. In June of 1894 I had seen twenty-five cases; up to April, 1905, I have seen 224 cases in Louisiana, six cases from Texas, one from Mississippi and one from Alabama: I have also seen two cases referred to me from distant States. My early experiences with leprosy were far from reassuring. The Leper Home had become an asylum, without hospital management or pretension, and persons not in the Home would avoid clinics and public places for fear of being sent to the Home.

My first attempts at the treatment of leprosy were based upon the experience of others. In 1894, the accepted treatment of leprosy was with chaulmoogra oil, hoang-nan, strychnine, arsenic, gurgun-oil, salol, salicylate of soda, ichthyol, europhen, and bichloride of mercury. No success with any of these had been reported, although chaulmoogra oil evidently occupied the position of being a remedy capable of ameliorating the disease.

Beginning in 1894, I have employed a number of remedies in treating leprosy with varying results, which it is the object of this paper to relate. It must be remembered that each case treated was treated under the most adverse circumstances. Some patients were not seen for months apart; while others would take treatment quite irregularly.

I have already stated that I believe leprosy curable. In ten cases to be related below I have demonstrated this. I wish further to state that no case of leprosy, in early or not advanced types, has failed to respond to treatment; amelioration occurs invariably and where treatment has commenced early enough and has been kept up long enough a certain number have recovered.

I have used at various times the following remedies: ichthyol, solicylate of soda, arsenic, strychnine, bichloride of mercury, chaulmoogra oil, antivenomous serum, normal horse serum, red mangrove bark, the derivative fatty acids of chaulmoogra oil.

The only remedies giving results were: strychnine, antivenomous serum, chaulmoogra oil, chlorate of potash.

With chlorate of potash one case was rid of all lesions in three weeks' time, but he did not maintain treatment and relapsed.

In 1897, I began experimenting with Calmette's antivenomous serum. The occasion which led me to this treatment has already been related in my paper presented to the Berlin Conference (*New Orleans Medical and Surgical Journal*, Oct., 1897). In that paper the results obtained were interesting. Of the cases there reported, five in all, one died unimproved, another subsequently materially improved under chaulmoogra oil, a third disappeared, while two cases entirely recovered. Of these two, one was a policeman, who, since 1897, now eight years, still fulfills his usual task, and *has had no treatment since* (excepting strychnine). The other, a carpenter, resumed his work, had no return of the disease, *without further treatment* (excepting strychnine). He died, however, of pneumonia, during the winter of 1902.

The serum was not at all effective in a series of cases afterward experimented with, but I attribute this result largely to the facts that the serum was not always fresh and that the expense attached prevented as full dosage as would have been indicated. Woodson's report of the use of the serum in one case shows that others did obtain results.

At the suggestion of Calmette himself, I experimented with normal horse serum—prepared expressly for me by Messrs. Parke, Davis & Co. This treatment was essayed in a series of eight cases for over a year but without results. Ichthyol, salicylate of soda, etc., likewise failed to secure results.

Chaulmoogra oil had been used so long for leprosy and with apparently such good results, *up to a certain point*, that it occurred to me to experiment with the derivations of *crude* chaulmoogra oil. Accordingly, Messrs. Parke, Davis & Co. separated the oil into its fat acids and delivered these to me with the residuum of the waste. I made pills of each of the acids and of the waste and experimented with each of these separately and combined. Again without result. In the meantime I was employing the usual stock chaulmoogra oil in most of my cases, but without permanent results.

I then asked Messrs. Parke, Davis & Co. to supply me with chaulmoogra oil in as crude a state as they could and yet have it in liquid.[1] I secured a quart of such oil and began now giving this in maximum doses. The results have been better than ever before and I believe that such oil more nearly approximates a specific for leprosy than any treatment as yet suggested.

Detroit, Mich., U. S. A., June 8, 1904.

1 Isadore Dyer, M.D.,
124 Baronne Street,
P. O. Box 278, New Orleans.

Dear Sir: Under date of May 12, we wrote you that we would postpone a final report on chaulmoogra oil, pending an attempt to obtain more definite information as to the source and process of manufacture from our Importing Branch in New York.

We are sorry to have to say that no one in this country to whom we have applied has been able to get us any definite details as to the manufacturing process. We are to-day addressing a letter to our Indian representative, and hope to obtain through him some further facts of first hand; as it will be some weeks before we can obtain a reply from this gentleman, we hand you herewith such excerpts from the literature as we think may be of some interest to you. As you will see, this information pertains rather to sources of supply than to the method of manufacture.

In Flückinger and Hanbury's Pharmacographia, the following statements are made:

"*Botanicol Origin.*—*Gynocardia odorata*, R. Br. (*Chaulmoogra* Roxb., *Hydnocarpus*, Lindl.), a large tree with a globular fruit of the size of a shaddock, containing numerous seeds immersed in pulp. It grows in the forests of the Malayan peninsula and Eastern India as far north as Assam, extending thence along the base of the Himalaya westward to Sikkam.

"*History.*—The inhabitants of the southeastern countries of Asia have long been acquainted with the seeds of certain trees of the tribe (*Pangieae* (ord. *Bixineae*) as a remedy for maladies of the skin. In China a seed called Ta-fung-tsze is imported from Siam, where it is known as Lukrabo and used in a variety of cutaneous complaints. The tree affording it, which is figured in the Pun-tasao (circa A. D. 1596) has not been recognized by botanists, but from the structure of the seed it is obviously closely related to *Gynocordia*.

"The properties of *G. onorata* were known to Roxburgh, who, Latinizing the Indian name of the tree, called it (1814) *Chaulmoogra odorata*. Of late years the seeds have attracted the notice of Europeans in India, and having been found useful

During the several years of my observation of leprosy I have acquired certain points which I have noted in the treatment of these patients.

1. Full diet, restricting only indigestible foods is indicated. The disease seems in nowise to be affected by fish or any other particular article of diet.

2. Baths are essential in the treatment. Hot baths twice a day, with or without soda, are effective.

3. The patient needs tonics, febrifuges, and should be watched for intercurrent or complicating diseases, such as malarial infection, pleurisy, pneumonia, grippe and the like.

4. Strychnine is a *sine qua non* in the treatment of leprosy. My assistants and I lay down the rule that a leper should always take strychnine—the sort and size of dose to be regulated by the patient himself.

5. When chaulmoogra oil is given it is better endured before meals than after. It is best taken in capsules, in hot milk, or in milk of magnesia. The dosage should be begun small, say 3 drops, and increased every second or third day until as much as 120 to 150 drops of the oil are taken at the dose.

At times it is advisable to give the oil in pill form. This can be done either combining it with extract nux vomica and ordinary excipients or a very effective way is with tragacanth and common soap.

6. Above all things individualize the patient. Watch for improvement and if it does not show in three months wait six months—if it does not show in six months, wait a year, or longer. But keep on driving at the treatment until the patient dies or gets well. I have on record one patient who did not show any signs of improvement for two years, but who is now well.

7. When all evidences of the disease are gone, insist on a continuance of treatment. It may not be necessary, but it makes sure.

I am not the first to argue the curability of leprosy. Every center of leprosy shows the disease one which runs a natural course. Sometimes fulminate and destroy the patient in a few months. Other cases are slow in their onset and are slow in their outcome. Yet other cases will show small evidence, which disappears, leaving no trace and never returning. There are all grades of the disease, and the care of each must be as each directs. It only remains for me to tabulate those cases of my own which in my opinion are cured of the disease.

Case I.—Lizzie O'C., aged nineteen years; first came under observation at the Charity Hospital in the early part of 1894. She presented characteristic macules on both legs. On her left foot, plantar surface, under the ball of the great toe there was a typical trophic ulcer, with the odor and process characteristic of this leprous manifestation. Treatment with strychnine and chaulmoogra oil was established. In six months the lesions of the disease disappeared and after more than a year had not returned.

Case II.—Martin O'C., father of Case I. Disease developed seven years after it had appeared in daughter. This case presented the following history: Aged sixty-two years; native of Ireland. Laborer. Seen at Charity Hospital in the fall of 1895. Lesions presented: One large leprous macule on the forehead; one on the arm of the right side and one on the leg. All of these were uniform in size, being about two inches in their long and one and a half inch in the shorter diameter. The lesions were in the form of irregular ellipses of a dull red color and somewhat elevated. Anesthesia was marked in each. The eruption had been out only a few months and because of the rapid recovery of the daughter she had brought her father for treatment. The evidences of the disease rapidly disappeared under strychnine and chaulmoogra oil. The patient reported for observation for six months.

Case III.—August R., male, aged forty-seven years; native of Louisiana. Macular anesthetic leprosy, trophoneurotic type. Came under observation in April, 1897. The antecedent history in this case was clear. Periodic attacks of rheumatoid pains in the right arm and forearm were followed by first a sense of numbness and then contraction of the fingers. When seen the arm

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in certain skin diseases, they have been admitted a place in the Pharmacopoeia of India.

"*Chemicol Composition.*—The kernels afforded us by means of ether 51.5 per cent. of fatty oil, which is almost colorless, or somewhat brownish if the seeds are not fresh. Either extracted or expressed it is of no peculiar taste. The pressed oil concretes at 17° C.; that extracted by ether or bisulphide of carbon requires for solidification a lower temperature. The expressed oil is slightly fluorescent, less so than that extracted by means of bisulphide of carbon. If the oil, whether pressed or extracted, is diluted with the bisulphide, and then concentrated sulphuric or nitric acid is added, no peculiar coloration is produced.

"*Uses.*—The seeds are said to have been advantageously used as an alternative tonic in scrofula, skin diseases and rheumatism. They should be freed from the testa, powdered and given in the dose of 6 grains gradually increased. Reduced to a paste and mixed with simple ointment, they constitute the Unguentum Gynocardiæ of the Indian Pharmacopoeia, which, as well as an expressed oil of the seeds, may be employed externally in herpes, tinea, etc.

"*Substitute.*—It has been suggested that the seeds of *Hydnocarpus Wightiana Bl.*, a tree of Western India, and of *H. venenata Gartn.*, native of Ceylon, might be tried where those of *Gynocardia* are not procurable. The seeds of both species of *Hydnocarpus* (formerly confounded together as *H. inebrians* Vahl) affords a fatty oil, which the natives use in cutaneous diseases."

In "Animal and Vegetable Fats and Oils," by Brannt:

"Chaulmoogra oil from *Hydnocarpus odoratus*, Lindl., a large tree found in the forests of the Himalaya, in the East Indies and Malayan Islands. The seed yields by expression over 30 per cent. of oil, and when extracted by ether 50 to 52 per cent. Chaulmoogra oil, when not entirely fresh or pressed from old seed, has a characteristic (bird-glue like) odor and taste, and is somewhat brownish; otherwise it is hard and without taste or odor. The expressed fat is hard up to 62.5° F., the extracted only to 57° F. In India, China and Siam the oil is used for many purposes, but specially as a remedy for rheumatic gout, and various diseases of the skin."

Squire's "Companion to the British Pharmacopoeia," edition of 1890:

"Chaulmoogra oil is obtained from the seeds of *Gynocardia odorata*. The oil has been long known and used in India; it is solid, of a light brown color, with a disagreeable taste and smell, and can be readily melted by a gentle heat. It has been recommended in the treatment of leprosy, psoriasis, obstinate eczema, and other skin diseases, chronic rheumatism and gout, and secondary syphilis. Good results have been obtained from its external as well as internal administration in phthisis. Chaulmoogra oil contains about 12 per cent. of an active principle, Gynocardic acid."

In the *Pharmaceutical Journal of Great Britain*, of May 12, 1900:

"*Notes on Chaulmoogra.*—It appears that the seeds of chaulmoogra met with in commerce, and generally considered to be the product of *G. odorata*, differ materially from those of that species. D. Hanbury ("*Science Papers*," 244) describes and

was swollen and the ulnar nerve somewhat thickened, with a nodosity the size of a hazelnut just below the elbow.

The last three fingers were contracted and could not be straightened, the effort to do so causing pain along the whole forearm. On these three fingers there was an eruption of bullae, in size about that of a silver dime; in number four or five. On the dorsum of the hand there were typical anesthetic macules. The anesthesia could be well determined fully one-third the way up the ulnar side of the forearm. From April 6 to June 22 salicylate of soda, strychnine, iodides, were given with varying result so far as the pain was concerned. The deformity persisted. On June 28, injections of antivenomous serum was begun. In all 11 injections were given in doses varying from 1½ c.c. to 3 c.c. and injected in various points of the body, chiefly along the ulnar nerve and in the interscapular area. Total amount injected 34½ c.c. On August 30, 1897, the following note was made: "There is faint rosiness over base of third finger, at second and third joints and over last phalanx; the same discoloration over the phalanx of little finger. The patient has complete use of the hand and forearm and complains only of stiffness at night in the third finger. He has improved in general health and weighs 186 against 174 pounds at beginning of injections."

This patient took strychnine sulphate in 1-60-grain doses throughout, and this was maintained afterward for some months. In January of 1898, there was no evidence of the disease and up to 1902, when patient was last seen, there has been no further evidence.

Case IV.—Henry P., male, forty-five years old; carpenter. Macular anesthetic leprosy, with trophic changes in the left hand. First seen November, 1896, at the New Orleans Polyclinic. The evidences of leprosy presented were as follows: Face, general duskiness, without distinct lesions. Ears thickened. Back, one small macule over the loin. On the right arm a distinct mottled lesion, just at the origin of the ulnar nerve; it was irregular in shape, rather ovid, with the long axis running diagonally across the inner aspect of that part of the forearm. Lesions dark brown, reddish. On the left arm, one lesion just at elbow-joint. On the outer aspect of the arm, another lesion like that on the right arm. On the flexor surface and inner aspect of this forearm, three inches above the wrist, a lesion as large as a silver dollar, purplish brown in hue. On the third finger, dorsum, deep purplish lesion, running the entire length of the finger. A similar lesion covered the first phalanx of the second finger. The left hand presented the characteristic claw hand. On the right thigh a large round lesion, 1½ inches in diameter. All lesions markedly anesthetic to pain. Up to July 7, 1897, patient had been treated variously with chlorate of potash, salicylate of soda, together with strychnine, without result. The strychnine was continued and antivenomous serum injections begun on July 7, 1897. A total of 18 injections were employed, 48½ c.c. in all; maximum injections 5 c.c.; minimum, 1 c.c. A note made August 30, 1897, relates that the lesions had disappeared in half their total area. The full use of hand restored. All injections had become painful and the patient had gained five pounds in weight. The injections in this case were kept up at less frequent intervals until the spring of 1898, when they were discontinued because of the difficulty of getting proper serum. The strychnine was maintained, however, and the patient reported regularly for observation. In June, 1898, he resumed his work as a carpenter, with no evidence of the disease left about him and without any recurrence whatever up to 1902. Then he died of pneumonia.

Case V.—K. G., aged forty-five years; merchant. Presented July 20, 1898, with some six leprous tubercles on his face and as many more distributed on different parts of the trunk and

figures Chinese chaulmoogra seeds as imported from Siam into China, as having foliacious, lanceolate cotyledons, which he recognizes as not being identical with *Chaulmoogra odorata* of *Roxburgh*, that authority describing the cotyledons of C. odorata as being subreniform, with the radicle variable. Notwithstanding this, in works on materia medica and in museums, the chaulmoogra seeds of Hanbury are attributed to *C. odorata*. G. Desorez has recently received from Calcutta specimens of both seeds. He describes the true *Chaulmoogra odorata* seeds as being larger, less uniformly gray, the testa being marked with dark patches. The integuments are not so brittle as in the ordinary kind, the kernel is reddish and marked with white. The cotyledons are thick, subreniform, the radicle placed at the side. These seeds contain a large amount of hydrocyanic acid. The seeds generally met with in commerce ar uniformly gray in color, the integuments are brittle, the kernel is dark in color, with a rough surface, the cotyledons are foliaceous-lanceolate, and the radicle direct, as described by Hanbury. These seeds contain no prussic acid." *Journ. de Pharm.* (6), 11, 316.

In the *Pharmaceutical Journal of Great Britain*, May 11, 1901, there occurs the following note by E. M. Holmes, Curator to the British Museum:

"Allusion has generally been made in this journal to the fact that chaulmoogra seed has been supposed to be yielded by another plant than *Gynocardia odorata*, but hitherto, in the absence of specimens, and judging from the meager information afforded in the *Journal de Pharmacie*, it has been impossible to publish full information concerning the facts. In the *Indian and Colonial Addendum to the Pharmacopoeia*, under Oleum Gynocardiæ, the oil is stated to be the fatty oil expressed from the seeds of *Gynocardia odorata*, or of *Gynocardia proinii*, Desprez. As a matter of fact, neither the chaulmoogra seeds nor the oil are obtained from *Gynocardia odorata*, but from an undescribed tree which M. Desprez proposed to call *Gynocardia Prainii*, in honor of Dr. D. Prain, the Director of the Calcutta Botanic Gardens. Dr. Prain, however, in a letter to me, accompanying the excellent specimens of the seeds sent by him for the Museum, states that so far as the imperfect material in his possession permits he has formed the opinion that the tree which produces the chaulmoogra seeds of commerce does not belong to the genus *Gynocardia* at all, but probably to the genus *Hydnocarpus*. He will not be able to determine this point satisfactorily until the tree flowers (which may not be until June), when he will communicate a note on the subject of our journal. The seeds of *Gynocardia odorata* are quite different to chaulmoogra seeds, having the radicle laterally placed, giving off hydrocyanic acid when moistened, and having a thinner testa."

In *Pharmaceutical Journal of Great Britain*, Sept. 14, 1901:

"*Oleum Gynocardiæ* is obtained by expression from the seeds of Taraktogenous kurzii, King (N. O. Bixaceæ), a native of Burmah. The oil possess alterative and emetic properties. It is administered in the form of an emulsion, or mixed with other oils, and the dose is from 5 to 10 minims, gradually increased to 0.5 to 1 fluid dram.

"*Characters and Test.*—Chaulmoogra oil is a brownish-yellow oil, or fat, of varying consistence, having a characteristic odor and a somewhat acrid taste. It has an acid reaction, and may fully liquefy only at 42° C., resolidifying in different periods, at temperatures from 15.5° C. upward. The specific gravity of the oil is also not constant, but is usually from 0.030 to 0.954 at 30° to 40° C. The oil is soluble in purified ether, chloroform, or carbon bisulphide, and the greater part of it is dissolved by cold 90 per cent. alcohol, the remainder being dissolved by repeated treatment with warm alcohol. A little insoluble, non-fatty matter is sometimes present in the oil, and causes turbidity of solutions in the liquids mentioned. A reddish-brown coloration, changing to olive-green, is produced on mixing twenty drops of the oil with one drop of strong sulphuric acid.

legs. Each of these was fully as large as a small marble and characteristic in clinical appearance. One of the tubercles was excised and the leper bacillus demonstrated. Patient was put under treatment but inside of three weeks his face was covered with new lesions; proportionately as many developed on the rest of the body. As this case had developed altogether in less than three months he was advised to change climate and left New Orleans. He returned at the end of two years, having been subjected to very rigorous treatment in Europe, and on my examination was found free of the disease. Since 1900 I have seen this patient at regular intervals of four or six months, and there has been no evidence in any way whatsoever of a recurrence. His treatment consisted in strychnine and chaulmoogra oil.

Case VI.—Mrs. G. Peterson, aged twenty-seven years. Applied for treatment at the Charity Hospital, September 22, 1899. She presented a deep-seated macular leprosy tubercle the size of a silver dollar on the right side of her neck. There were two lesions twice this size on each leg. On both hands there were leprous nodules and the ulnar nerve on the left side was perceptibly enlarged. Some contraction of the two last fingers. Patient took strychnine in 1-50-grain doses and chaulmoogra oil in increasing doses until 40 drops at the dose were taken. In October, 1902, there was no evidence of the disease. This patient has reported regularly at intervals of every four months up to the present time, and there has been no recurrence.

Case VII.—Blanche B., aged twelve years. Reported for treatment July 22, 1901, presenting a typical lesion the size of a silver quarter over the right maxillary region. Another lesion as large as the palm on the right leg. Both typical leprous macules. One-sixtieth-grain doses of strychnine sulphate and increasing doses of chaulmoogra oil were administered. A maximum of 30 drops was reached. In June, 1902, both lesions had disappeared. Treatment was continued until 1903. Patient has reported at intervals since then and there has been no recurrence.

Case VIII.—A. G., aged thirty-three years; female. History of the disease of ten years' standing, progressively increasing until I saw the case. At this time the face was covered with ulcerating tubercles; the hands were considerably swollen, here and there presenting bullae and ulcers of typical character. No area of the body was free of discoloration, macules or tubercles. Treatment was begun in March, 1901. One-fiftieth grain strychnine sulphate was administered three times a day. Chaulmoogra oil was given in increasing doses to 60 drops three times a day. In addition, arsenic and glycerophosphates were administered from time to time. The nose was kept flushed with glycothymolin and hot baths with carbonate of soda at 95° F. were given twice a day. In July, 1903, the patient was free of any leprosy lesion, bacteriological examinations of secretions and urine proved negative. Up to the present time the patient has been bacteriologically examined three times with negative results. There has been no recurrence of the disease.

Case IX.—J. C., aged thirteen years. This boy has been the subject of widespread newspaper report because of his discharge from the Louisiana Leper Home. He was admitted in 1902 as a typical case of tuberculous leprosy. His treatment consisted in 1-60-grain doses of strychnine sulphate and chaulmoogra oil up to 100 minims at the dose. His improvement began promptly, and, at the end of one year, the tubercles had disappeared. In June, 1904, there were some small areas of pigmentation left. In December, 1904, after negative bacteriological examination, and the lack of any evidence whatsoever of the disease, the boy was discharged. He is still kept under observation and up to the present time remains well.

Case X.—S. J., aged thirty-eight years; native of New Orleans. First seen March 30, 1898. Typical tuberculous leprosy involving face, hands, legs and back. The patient persistently improved under chaulmoogra oil and strychnine, never reaching more than 40 drops of the oil. She has been free of any evidence of the disease since 1903.

The Louisiana Leper Home might have afforded wide opportunity of sucessful therapeutic investigation were it not for the fact that the policy of the Board of Control, after I resigned in 1896, directed the Leper Home as more of an asylum than a hospital. As a result, during the

"*Notes.*—It has been supposed that the source of chaulmoogra oil is *Gynocardia odorata*, R. Browne, or *G. Prainii*, Desprez; but neither of these plants appears to produce the chaulmoogra seeds of commerce, from which the oil is obtained. The chief constituent and active principle of the oil is gynocardic acid, which causes the coloration produced on mixing the oil with sulphuric acid. The oil contains gynocardic and palmitic acids, both in the free state and as glycerides, while the glycerides of hypogaeic and cocinic acids are also present. Gynocardic acid can be obtained in crystalline plates and has an acrid, burning taste."

"As you will note from the above quotations, the true source of chaulmoogra oil has been uncertain till within very recent times. The quotation from the *Pharmaceutical Journal* of Sept. 14, 1901, above cited, is probably the most reliable summing up of the facts in the case. The statements there made as regards physical properties and chemical tests are characteristic of the oil which we handle, and which we import direct from India. As you will note from the facts above quoted, there is a slight difference between the oil as prepared by the more or less crude, native process of expression and that prepared by the more modern, scientific methods of expression by solvents. The latter oil prepared by the solvent process is most likely to be obtained from European sources, where such plants for the economical extraction of vegetable oils are located; on the other hand, *the oil obtained from India is most likely to be made by the old-foshioned process, and we have continued to obtain our oil from East Indian sources, as it is upon such expressed oil that the reputation of this remedy is based. You will understand that we are not prepared to state that the highly refined oil prepared by the solvent process in Europe is not entirely as good as the crude oil made by the natives in India, but, so long as this has not been demonstrated by actual clinical tests, we have thought it advisable to stick to the Indian supply.*

"We are very sorry, indeed, that we have not been able to offer you more detailed information as to the native method of manufacture, but, as you see from the above quotations, about the only fact apparent is that the native process consists in grinding or crushing the seeds and then submitting them to expression. If there are any further facts relating to this subject upon which you think we can possibly throw any light, we shall be very glad to receive some further communication from you.

With best wishes, we remain, Yours very truly,
(Signed.) PARKE, DAVIS & CO.,
Per J. M. F.

years 1896-1902, no specific treatment was applied to the inmates of the Home, and they were allowed to fulfil the natural outcome of the disease. Since 1902, regular systematic treatment has been adopted with the result that marked amelioration has been obtained in every case not too far gone. Dr. Ralph Hopkins, my chief of clinic in the Tulane Medical Department, and clinical assistant in the New Orleans Polyclinic, has systematic charge of the Home, and it is to his care and judgment that whatever results that have been obtained are due. Analysis of his very able report embodied in the last report of the Louisiana Leper Home (1904) to the Louisiana State Legislature, clearly evidences what results have been obtained. In the 40 odd cases treated a variety of remedial agents were employed. Of these the most effective were chaulmoogra oil, strychnine and salicylate of soda. The red mangrove, normal horse serum and miscellaneous agents experimented with proved of little avail.

It is to be remarked that almost all patients taking chaulmoogra oil have improved.

Of the present inmates in the Home there are fully a half dozen who have improved to the point of certain arrest in the disease; two of them being now kept under observation with the idea of their discharge at no far distant date.

So much newspaper notoriety has attached to my work with leprosy that I have considered it a privilege to present this whole subject before the association of medical men in my native State of Texas. I am not alone in believing leprosy curable and can cite such men as Fox, Unna, Crocker, Hutchinson, as among those who have cured the disease and who have recorded their work in this direction. I believe that no such number has as yet been recorded as those given above by me. Mr. J. F. Tonkin, officially representing the British government, reports upon the conditions in Jamaica in his report for 1903, and states that since the Kingston Leper Hospital was instituted a total of sixteen cases have been discharged.

I cannot conclude this paper without referring to the able contributions to this subject by another Texan, Dr. R. H. L. Bibb, now located at Saltillo, Mexico. Besides having written the most exhaustive paper yet published on the treatment of the disease (Alvarenga Prize Essay for 1905) he has emphatically declared himself in believing that chaulmoogra oil is the specific for leprosy.

It may be some time before the majority of the profession can be persuaded to the precept which this article conveys, but if I have succeeded in stimulating a discussion, contrary or otherwise, I shall be satisfied that the work embodied has not been in vain.

Medical Consultations in China.—Medical consultations are carried to their extreme limit in China. There, when any one becomes seriously ill, a consultation of 15 or 20 doctors is held. The doctors fill the house with their arguments. They make as much noise as a political convention.

PRIMARY SARCOMA OF THE STOMACH.[1]

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Although it is true that sarcomata must be included among the rare tumors of the stomach, yet recent studies have demonstrated that they may possibly occur more frequently than is generally supposed. Fenwick is probably not far from the truth in his assertion that they constitute from 5 per cent. to 8 per cent. of all gastric tumors. In proof of his claim he urges that the greater number of cases has been reported since attention was especially called to their occurrence by Virchow, forty years ago, and that the re-examination of some specimens which had been catalogued as gastric cancer has demonstrated that the tumors were really sarcomata. Furthermore, that although Schlesinger was able to collect only 30 cases in 1897, yet in November, 1900, the number of cases exceeded 60. Rosenheim also states that sarcomata are not as rare as is supposed. Perry and Shaw found 4 cases of sarcoma in 50 cases of malignant disease of the stomach; Haberkahndt found 3 sarcomata in 207 pyloric resections; while Czerny found only 2 sarcomata in 208 gastro-enterostomies.

The two cases which I shall report occurred within one year at the Mt. Sinai Hospital. Dr. Harlow Brooks informs me that in addition to the case which he published in 1898 he has since been able to collect 3 additional cases during nine years' service at Bellevue Hospital.

That uncollected cases may be scattered through the literature was strikingly shown to me recently when, while hunting up a false reference in the transactions of the London Pathological Society, 1889, I found an unreported case of diffuse gastric sarcoma.

On the other hand, Alesandri, whose article is one of the most recent on the subject, still maintains that they are very rare. This question is of interest, not so much from a diagnostic and pathological standpoint, as to that of prognosis, since the results of operation in some cases of sarcoma are decidedly better than in carcinoma as is well shown in Dock's case in which a large lymphosarcoma was removed over four years ago. I have learned from a recent personal communication from Prof. Dock that the patient is still alive and well. It is possible, therefore, that in the absence of more definite pathological details on the subject, some of our observations on the operative results of carcinoma of the stomach may be modified.

To consider many of the details of the pathology, symptomatology, etc., is scarcely necessary, since much of it would be a useless repetition of what has already been well presented by Schlesinger, Fenwick, Alesandri and other writers.

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[1] Read at the Eighth Annual Meeting of the American Gastro-Enterological Association, held at New York, April 24 and 25, 1905.

Here it will suffice to call particular attention to certain practical features:

1. That the new growth arises from the submucosa or muscularis, the mucous membrane being involved only late in the disease as a secondary result, or it may escape entirely. The curvatures, especially the greater, are usually involved, the pylorus being less frequently attacked.

2. The growth may be diffuse, as usually occurs in lymphosarcoma, or it may be circumscribed, this being the ordinary form of the spindle-celled type. These circumscribed growths often assume a polypoid form, growing either into the lumen of the stomach, or outwardly into the greater or lesser peritoneal cavity. These polypoid tumors constitute a very puzzling group, the diagnosis of which is exceedingly difficult, since it is in these cases that the mucous membrane is usually intact while few if any of the symptoms draw attention to the stomach as being the real source of the neoplasm.

3. The orifices are rarely stenosed and if the pylorus is involved the stenosis never reaches the degree so frequently encountered in carcinoma.

4. Degenerations frequently occur in these tumors. These include hemorrhages, cystic degeneration, formations of fistulous tracts, etc. On the other hand, it is to be noted that sometimes the sarcomata are themselves degenerations of other benign tumors such as fibromata, myomata, etc.

5. As regards size, they may constitute large tumors (weighing 12 pounds or more), or they may be so small as to be found only by mere chance at autopsy.

6. They may be primary or secondary. The latter are the rare forms, except in lymphosarcoma where the secondary forms are commoner than the primary. Doubt has even been cast upon the cases of primary lymphosarcoma since it is urged that some small, primary lymph-gland tumor may have escaped notice. These secondary lymphosarcomata are usually derived from some growth in the neck, pharynx, gums, rectum, retroperitoneal sarcoma, etc., or they may constitute part of a general lymphosarcomatosis of the gastro-intestinal tract, or they may be an internal manifestation of Hodgkin's disease.

7. Metastases may occur in neighboring or distant organs, or they may be absent. The distant organs may include the skin, testicles, tongue, tonsils, rectum, etc. The skin metastases are of particular interest since their occurrence is much more frequent than in cancer and may thus afford much important diagnostic information.

8. *Age.*—The range is very great. Finlayson's case occurred at 3½ years and the case of Malvoz occurred at seventy-eight. Fleiner states that they may even be congenital. As a rule the average age is younger than in carcinoma; thus the 4 cases of lypmhosarcoma reported by Perry and Shaw were fifteen, eighteen, thirty-eight and sixty-seven years old.

Special attention may be directed to a group of cases with gastric symptoms in which hematemesis is the leading symptom. Although it has been shown that bleeding is a relatively infrequent symptom in gastric sarcoma and is used as one of the points of differential diagnosis, yet cases have been reported in which the bleeding was either an early or a late symptom and even led to that mistaken diagnosis of gastric ulcer.

One of the earliest cases with hematemesis is that of Hartley to whom I am indebted for the following report:[1]

Mrs. B., fifty-four years. Five years ago (1890), without any special cause, she vomited a large amount of coffee-ground material. The vomiting did not recur and she went on for four years in fair health, except for the heavy feeling after eating. One year ago she again vomited blood of coffee grounds and clotted in character for five mornings in succession; this was again without cause or exacerbation of gastric symptoms. The pain in the back which she had suffered previously became much worse at this time and she noticed a considerable swelling of the stomach.

Physical Examination.—In the left lumbar and left umbilical region is a rounded tumor about the size of the adult fist, which is hard and elastic, freely movable and easily displaced up into the left hypochrondriac region.

Operation.—April 26, 1895. Incision 5 in. long, just to the left of the left rectus; the hand was introduced and prolonged search made. The kidney could be felt in place, the large intestine bulged into the wound and was normal; behind the mesocolon and in what appeared to be the position of the spleen was the large tumor; the spleen was not felt. The mesocolon was torn through and the surface of a tumor in lesser peritoneal sac disclosed. This tumor was brought through this opening in the mesocolon and it was seen that it arose from the posterior wall of the stomach by a pedicle 1½ in. in diameter. The stomach was pulled well out and graped by house surgeon well below the pedicle. The stomach was now cut through entirely around the pedicle and a circular part of stomach wall excised. Abdominal wound closed in usual manner with drainage in center.

Pathological Report.—By Dr. Ferguson, May 10, 1895. The material is a pear-shaped tumor measuring 15 x 10 x 8 cm. Its surface is smooth but nodular. It is apparently covered by peritoneum. The tumor is cystic, the cysts varying in size from ½ to 4 cm. in diameter. The tumor is firm in consistency and of pale gray color. An area of stomach wall 5 x 4 cm. has been removed with the tumor, the mucosa has not been ulcerated but is intensely hyperemic. Sections show the ordinary appearance of spindle-celled sarcoma. The vascular supply is abundant, some of the vessels being large with thin walls.

1 This is the case which was published in the Annals of Surgery, 1806, Vol. 23, p. 609.

Discharged cured, June 1, 1895.

Case II, which I present, was also marked at its close by severe hemorrhages from the stomach and bowels.

Oberst has just published a paper in which he directs especial attention to this group of cases; he reports a case of gastric sarcoma (man, twenty-five years old) which was mistaken for a gastric ulcer. He also quotes a similar case of Robert and two of Kundrat. He therefore urges that the possibility of gastric sarcoma should be considered in youthful individuals with hematemesis in which the course is unusual or in which there is delayed convalescence after hemorrhage of the stomach.

Symptoms.—The cases may be divided into two great groups: First, those without; and second, those with gastric symptoms.

In the first group are included the cases in which the tumor grows outwardly into the peritoneal cavity and also many of the cases in which the growth is toward the gastric lumen but in which the infiltration of the stomach does not involve the pylorus and leaves the mucous membrane intact. This group includes the unusual cases of abdominal tumors which have been incorrectly diagnosticated, the true condition being revealed at operation or at autopsy.

The complications from the peculiarity of the growth may dominate the picture, such as adhesions, torsions, displacements, hemorrhage in the tumor, cystic degeneration, suppuration, etc., or, metastases may cause leading symptoms such as disturbances in the intestines, rectum, etc. One peculiarity of the intestinal metastases is to be noted—that they rarely cause stenosis, being thus unlike the secondary growths which occur in gastric carcinoma in which stenoses may much more frequently occur.

In the second group the gastric symptoms are practically those of gastric cancer. In most cases, however, the gastric symptoms are mild and only become marked toward the end of the patient's life.

A few points of differentiation may be noted. That vomiting and hemorrhage are less frequent and are usually only late symptoms. On the other hand, pain, fever, albuminuria, marked anemia and weakness are more marked and occur much earlier; indeed, the marked anemia and weakness may for a long time be the only symptoms. The appetite may fail, or, as in gastric cancer, may persist throughout. Perforation occurs more frequently. Marked splenic enlargement is much more frequently noted than in gastric cancer. On the other hand, omental and peritoneal involvement are less common. The skin metastases have already been referred to. A number of other minor conditions have been reported, still they are too inconstant to be of great differential diagnostic value.

The physical signs are inconstant as is readily understood from what has already been said concerning the pathology. Fenwick states that tumor was present in only 30 per cent. of the cases, and when the tumor was present it was frequently mistaken for tumor of the spleen, of the pancreas, kidney, omentum, ovary or retroperitoneal glands.

There are great variations in the size of the stomach since it may be enlarged or contracted or displaced or distorted, as occurs in the unusual cases where there is marked downward displacement of the stomach which is at the same time distorted into a sausage-shape resembling the transverse colon.

The stomach contents have been observed in about ten cases. They are practically identical with those found in cancer of the stomach. In one of the cases which I report the same is to be noted. In one case which was under observation Erlach could follow the transition from normal chemism to complete absence of hydrochloric acid which occurred later in the disease. In several cases there was no change in the gastric secretion. Indeed, considering how long the mucous membrane remains uninvolved it is surprising that there is as much change in the chemism of the stomach as has been reported.

The stagnation in the stomach contents is not due so much to pyloric obstruction in these cases as it is to the infiltration of the muscularis.

Diagnosis.—The possibilities of diagnosis are best summed up in the words of Leube who has allowed them to remain unchanged even in the recently published edition of the *Diagnostik:* "In my opinion these tumors *cannot be diagnosticated*, not even when the conditions are very favorable for making a clever diagnosis, because of of the presence of a general sarcomatosis or cutaneous sarcomata. In one such case, it is true, I found a gastric sarcoma, but in another case of skin sarcomatosis the tumor in the stomach was a true epithelial cancer." However, if more exact points of differentiation are desired, I may quote the differentiating points given by Fenwick, who claims that "a diagnosis of round-celled sarcoma of the stomach may often be made by attention to the following points:

1. The disease usually occurs before thirty-five years of age, so that the younger the patient the greater the probability that the malignant affection is sarcomatous in character.

2. In many cases there is slight but continuous pyrexia, accompanied by rapid and profound anemia, while in carcinoma fever is usually absent during the early stages of the complaint and the cachexia much more gradual in its development.

3. Enlargement of the spleen is by no means infrequent but is rarely met with in cancer unless the organ is involved in the growth.

4. According to Kundrat the tonsils are apt to enlarge and the follicles upon the sides of the tongue may become swollen or ulcerated.

5. Secondary deposits in the skin occur in a notable proportion of the cases and permit of excision and microscopic examination. It should

be remembered, however, that sarcomatosis has been met with in true cancer of the stomach (Leube).

6. A large nodular tumor due to infiltration of the omentum and a greatly enlarged liver with secondary growths in its substance are rarely met with.

7. Persistent albuminuria is often observed in sarcoma but is exceptional in cancer.

8. The discovery of pieces of morbid growth in the vomit renders the diagnosis certain. (Riegel, Westphalen).[1]

Prognosis.—As already stated, this in some cases is decidedly better than a carcinoma; in other cases, however, the course may even be more malignant.

Treatment.—If the diagnosis has been made arsenic ought to be used as it is in all cases of lymphosarcomatosis, otherwise the treatment is strictly surgical.

The histories of the two cases I present are as follows:

Case I.—L. S., shoemaker, forty-eight years of age, was admitted to Mt. Sinai Hospital to the service of Dr. Alfred Meyer, September 26, 1903. His symptoms are of four months' duration—loss of appetite, occasional vomiting of food, obstinate constipation. He has lost considerable flesh and strength. General condition fairly good; tongue moist, coated; a few small glands in the neck, axilla and groin. Physical examination negative throughout. Abdomen lax, tympanitic, no tenderness, no tumor palpable; general visible peristalsis. No fever. Urine negative. September 27—Test breakfast (Ewald).—Slightly digested; total acidity 40 per cent.; free hydrochloric acid absent; combined acids 30 per cent.; no lactic acid. Ferments absent.

September 30—Total acidity 84 per cent.; free hydrochloric acid absent; combined acids 26 per cent.; lactic acid present; no blood. Ferments absent.

He left the hospital October 2 very much improved. He was readmitted on December 7. For ten weeks previous to his readmission he had had fever, pain in the upper right quadrant of the abdomen, the pain having no relation to the ingestion of food. Eructation and cardiac palpitation after eating. Progressive loss of flesh and strength. Vomited only once; no blood. Defecation and urination normal. Chief complaint abdominal pain and weakness.

Physical Examination.—Mucous membranes pale; pupils unequal, the left being somewhat larger than the right. Abdomen: The veins on both sides of the lower abdomen dilated. Liver extends to three fingers below the free border In the right hypochondriac region a large mass, somewhat irregular in shape, with a sharp edge can be felt; it extends on the right to the mammillary line, on the left it reaches one-half inch to the left of the middle line; its lower border is within one-half inch of the umbilicus; it is dull tympanitic on percussion and not tender; otherwise the abdomen is negative. Urine negative.

Blood Examination.—Thirty per cent. hemoglobin; red blood cells, 4,000,000; white, 13,600.

Test Breakfast (Ewald).Two ounces removed; fairly digested; total acidity 26 per cent.; free hydrochloric acid absent; lactic acid present; ferment absent.

December 10—The patient vomited a very large amount of undigested food. The mass became much more prominent after this and extended from the right mammillary line to the left parasternal line, above it reached the free border of the ribs, on the right of the mammillary line, midway between the umbilicus and the xiphoid was a sharp edge. Dull tympany over the tumor.

December 12—Movable dulness in both flanks, fluid in the abdomen. The patient is now running a slight evening temperature. The urine now contains a faint trace of albumin. For the past few days he has had three to four stools daily.

Consent having been obtained for an operation he was transferred to Dr. Gerster's service where a gastro-enterostomy was performed on December 14. Death three days later.

Autopsy seventeen hours after death by Dr. Libman.

Murphy button found at site of gastro-enterostomy, good apposition of stomach wall and jejunum.

Lungs.—Right upper lobe was in incomplete gray hepatization. Both lungs adherent; markedly anthracotic. Pleura showed a moderate number of hard thickenings, some flat, some nodular. Acute pulmonary edema.

Stomach.—Moderately dilated. At pylorus a large, hard nodular tumor adherent to pancreas and duodenum and involving the whole circumference of the stomach for a distance of 3 inches from pylorus. Parts of the tumor were soft and had undergone degeneration. Pylorus admitted one finger. The interior of the stomach showed the same tumor ulcerated and involving the pylorus and stomach but not the duodenum. In other areas of the stomach wall there were some small hemorrhages in the mucosa.

Liver.—Normal size and consistency. Cloudy swelling (no metastases).

Kidneys.—Capsule of the right adherent. Both acutely degenerated.

Microscopic examination of the gastric tumor proved it to be a lymphosarcoma.

Case II.—Mrs. A. S., forty-eight years of age, admitted to Mt. Sinai Hospital, under the care of Dr. Albert Kohn, August 6, 1904. For years this patient had had repeated uterine hemorrhages, supposedly due to fibroids, for which, however, she had refused operation. Not long before she came under treatment she had several uterine hemorrhages and her intense anemia was supposed to be due to that cause.

She was first seen July 3 with the symptoms of a marked secondary anemia, confirmed by several

[1] Schlesinger made the diagnosis in one of the cases from a piece excised from a metastatic mass in the rectum.

blood examinations. Loss of flesh and strength were not marked. Complaints were of extreme dizziness, sinking sensations, inability to assume the upright position. Headaches general. Loss of appetite, nausea, eructations. Vomiting only once or twice. She had many movements (9 to 12 daily) which were very loose, tarry and controlled with difficulty. Tenderness over the entire abdomen with pain, both marked over an epigastric tumor which was the size of a peach. The tumor was freely movable and did not disappear under the ribs. Her temperature was never above 101.5° F.; never subnormal.

Blood Examination.—Hemoglobin 18 per cent.; red cells 1,590,000. A few poikilocytes and microcytes; granular degeneration of red cells; moderate relative leucocytosis. Stools contain pus and red blood-cells. Hemin test positive. Urine 1.010, large trace of albumin; no tubercle bacilli.

The diarrhea, loss of appetite, nausea, eructation and obstinate loose, watery stools with small blackish fecal particles, the increasing anemia and abdominal pain and tenderness were the only symptoms. During observation at the hospital the most prominent symptoms were sighing respiration and weakness, diarrhea and vomiting, melena and bloody vomit. The physical examination showed not only a mass in the epigastrium, but two masses, one in each iliac fossa which were apparently new growths. However, on post-mortem examination nothing could be found to account for these two tumors. Test-meals could not be given on account of the wretched condition of the patient. She died August 13, 1904.

Autopsy.—By Dr. Buerger. *Lungs.*—Congested at base; few pleural adhesions. *Liver.*—Grayish-brown color, pale, firm consistency; marked parenchymatous degeneration, pigmentation, slightly fatty. *Stomach.*—Externally negative except for a somewhat depressed, scar-like area, 4 cm. proximal to pylorus, in the immediate neighborhood of which are stellate dilated vessels. Capacity somewhat increased; wall slightly thinned. About 4 cm. from the pylorus on the anterior wall there is a soft grayish-pink flattened sessile tumor, almost circular in outline, raised by a rounded though irregularly lobulated convex surface 12 mm. above the surounding mucosa. It appears even less prominent than this owing to a very marked, raised, somewhat circular, well-defined margin of slightly cicatrized mucosa immediately surrounding it. At one portion it is ulcerated and excavated so as to be on a deeper level than the mucosa of the stomach. Upon section it presents a radiate, irregular, streaky surface, here and there beset by small hemorrhages.

Microscopic examination shows it to be a myosarcoma. Intestines practically negative except for the presence of altered blood. In the ileum there are several script-like areas of brown pigmentation. No ulcerated areas or any points of bleeding could be found. Uterus contains small submucous fibromata. Bone marrow red in color, soft, diminution of fatty elements. Kidneys, intense parenchymatous degeneration. Interstitial changes in medulla. Spleen congested.

LITERATURE.

The literature of sarcoma of the stomach may be found in the following references which include the most important contributions to this subject.

Schlesinger. Zeitschrift für klin. Medizin. Bd. 32, Suppl. Heft, 1897, p. 179.

Fenwick. Cancer and Tumors of the Stomach, 1902, pp. 272-283.

Alesandri. Mittheilungen aus dem Grenzgebiet der Med. und Chir., Bd. 12, Heft 4.

Oberst. Beitrage zur klin. Chirurgie, Bd. 45, 1905, Heft 2, p. 477.

CYSTIC KIDNEY AND LIVER.[1]

BY HERMAN A. REQUE, A.B.,

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THE cases which I wish to discuss belong chiefly to that form of cystic kidney in which there is a total cystic degeneration of the organ and, usually, a great increase in its size. This form has also other features which seem to differentiate it from the ordinary retention cysts sometimes found in chronic nephritis and from the so-called solitary cysts. Some of its peculiar features are the following: (1) It is generally bilateral; (2) it often occurs with cysts of the liver or other organs; (3) it is often, according to some authorities, always, congenital; (4) it is sometimes associated with malformations, as polydactylism, webbed toes, cleft palate, hydrocephalus, anomalies of the genitalia, etc.; (5) it has been found in several members of the same family; (6) it presents microscopic appearances, in many cases, which are difficult to explain by any purely inflammatory or retention theory.

It is not to be inferred that all cases presenting any of these features necessarily have the same origin, but they are often grouped together under various names, as cystic kidney proper, congenital cystic kidney, polycystic degeneration of the kidney, or the gros rein polykystique of the French.

Several specimens and records of such cases exist in the pathological laboratory of Rush College and form the basis of this report. Two of the cases are accompanied by cystic degeneration of the liver.

Before going on to describe these cases I will attempt to give a brief résumé of some of the most important recent literature on this subject as well as briefly to mention the different theories of origin of cystic kidney and liver that have been advanced. A concise consideration of the whole subject is found in an article by Hektoen, written in 1892; of more recent ones that by Dunger is especially noteworthy and gives a complete bibliography up to date.

Virchow noted the occurrence of cystic kidneys in several children of the same mother and was inclined to explain them as due to some

1 From the Pathological Laboratory of Rush Medical College, Chicago.

inflammation occurring in utero, depending on some product derived from the maternal organism, and involving especially the papillæ so as to cause an occlusion of the discharging tubules —a papillary atresia. This view represents one form of the retention theory. Cystic kidney in the adult Virchow thought to be simply the remains of a condition developed in fetal life.

The retention theory was supported among others by Thorn, who thought that an inflammation of the renal pelvis with involvement of the medulla was probably a frequent cause. Durlach describes a case in a child of six months, where a primary pyelitis had produced cysts. Arnold has described an interstitial papillitis. Leichtenstern expresses the view that the same processes which ordinarily set up an interstitial nephritis may, under certain circumstances, affect chiefly the arteriolæ rectæ veræ and thus cause a primary nephropapillitis, resulting in the occlusion of single tubules and the formation of retention cysts. Ewald and others adopt one of Virchow's earlier views and make a precipitation of uric acid or other substances in the tubules responsible for the cyst formation. This is again a form of the retention theory. More recently, Stieda described a case in a woman twenty-seven years old of bilateral cystic kidney "*in statu nascendi.*" In this case the cysts were small and the organs very moderately enlarged. There was no evidence of any epithelial proliferation nor of any very recent inflammation. But there were present disseminated foci of scar tissue, probably due, the author thinks, to some past, rather acute inflammatory process, perhaps a pyelonephritis. Closure of the tubules by these foci of scar tissue he thinks to be the cause of the cysts, which would then be retention cysts pure and simple. Whether this past inflammatory process would be capable of carrying on the cyst formation to the stage of a total polycystic degeneration is another question. As bearing on this point, an experiment by Tollens may have some interest. It is well known that ligation of the ureter causes atrophy of the kidney. More closely to reproduce the conditions found in a nephropapillitis, the kidneys of rabbits were exposed and opened by longitudinal incisions and the papillæ then cauterized so as to close effectually all ducts in the papillæ so treated. The kidneys were removed and examined after intervals of 4, 8½ and 12 weeks. After four weeks the kidneys were found to be double their normal size and full of minute cysts formed by dilatation of tubules. In the papillæ all the tubules were closed by scar tissue. Some of the tubules affected showed several layers of epithelium and other apparent efforts at regeneration or proliferation. There was a great proliferation of connective tissue. The kidneys examined after 8½ weeks were much smaller than normal. The obstructed tubules showed in part increased dilatation, in part total compression, while some had again found an outlet into the pelvis. These changes were still more pronounced after twelve weeks. Considerable connective tissue remained and became sclerotic. Some cysts also remained. But the general conclusion drawn by Tollens is that the closure of the excretory ducts, where it is permanent, in the kidney as in other glandular organs, simply results in destruction of the parenchyma, which is replaced by scar tissue. It seems to me that this experiment would tend to show that a past inflammatory process does not result in cystic degeneration in the narrower sense. It does not appear from the original article whether the author intended to prove or disprove any theories as to cystic kidney.

That such processes as those mentioned can and do produce cysts in the kidney, both bilateral and unilateral, seems certain; but many of the cases so explained would probably belong with the ordinary retention cysts of chronic nephritis.

Still calls attention to the fact that cystic kidney is more frequent in the female than in the male, in the proportion of four to one, while interstitial nephritis is more frequent in the male in the proportion of five to one.

A second theory, supported by many recent investigators, is the cyst-adenoma theory. As early as 1876, Michaelowicz suggested that "cystic degeneration of the kidney is analogous to cystic disease of the testicle, mammary gland and ovary." Brigidi and Severi describe a case of bilateral cystic kidney as true tumor formation —cystoma of the kidney. Chotinsky thinks that proliferation of the epithelium precedes the cyst formation and may be a cause of the same by obstructing the tubules and causing retention of the secretions. Orth suggests that adenomatous cysts with a primary proliferation of the epithelium may have to be differentiated from retention cysts with a passive condition of the epithelium, especially in those cases where cysts of the liver are also present. Lejars describes the process as a mucoid epithelioma similar to that of the testicle and ovary. Sabourin expresses the view that the cysts have their origin in a special evolution of the urinary tubules, the epithelium of which has been reduced to an indifferent state by cirrhotic processes and then later forms alveoli and nodules which develop into cysts. This view is pronounced by Dunger to be far-fetched. Philippson describes solid epithelial processes in the tubules as possible factors in cyst formation. He also found papillary growths covered by epithelium extending into the cysts.

One of the most important contributions to the cyst adenoma theory is that of Nauwerck and Hufschmied. These investigators found much evidence of inflammation, especially a great proliferation of connective tissue; but they lay more stress on the evidences of epithelial proliferation. They found solid epithelial processes extending from the tubules and pushing out through the basement membrane; solid masses

of epithelial cells within the tubules; papillary projections of fibrous tissue covered by epithelium extending into cysts; small cysts lined by several layers of epithelium. From these findings they conclude that their specimen represents a multilocular cystadenoma. As factors in the further growth of the cysts they consider decomposition of leucocytes, colloid degeneration of the proliferated epithelium, exudation or transudation, and retention of secretions.

Von Kahlden corroborates the above findings. He saw solid masses of deeply staining cells projecting from the tubules; some of these cell-masses showed a beginning central degeneration, and he was able to follow this change to the stage of cyst formation. He regards the interstitial changes as secondary. The retention theory he considers inadequate, not only in view of the histologic findings, but also in view of the frequent complication with other maldevelopments, as cystic liver, which was present in one of his cases. Cystic kidney in the adult, he thinks, may be congenital and, not being far advanced at birth, may remain latent for many years. The same author describes also a case of cystic kidney in a new-born child. The right kidney was four times its normal size, the left not so much enlarged. The cortex in both was full of small cysts. In this specimen he found the same epithelial proliferation and cyst development from masses of epithelium. The number of glomeruli was reduced to about one-eighth of the normal and there were practically no normal tubules. On the whole, the process was decidedly cystadenomatous, although in places, owing to the great amount of fibrous tissue, it resembled a fibro-adenoma canaliculare.

In view of these investigations it seems certain that the cyst-adenoma theory will explain some cases both in the new-born and in the adult, the main difference between the two being that in the latter the cysts have grown larger and secondary inflammatory changes may have occurred.

A third theory of the origin of cystic kidney remains to be spoken of, the malformation theory. To appreciate the bearing of this theory it is necessary to have in mind the embryological development of the kidney. According to the most widely accepted view, two elements are concerned. On the one hand, the medullary portion, comprising the whole collecting and discharging system of the permanent kidney (metanephros), is formed from a diverticulum of the Wolffian duct, which is developed at a point just above the place where the duct empties into the cloaca. The researches of Schreiner and others on this point seem to be conclusive. The cortical portion, on the other hand, comprising the secretory system (glomeruli and convoluted tubules), is formed from the nephrotome or "nephrogenic tissue" (Schreiner), and later comes into communication with the branches of the diverticulum from the Woffian duct. It appears, therefore, that the permanent kidney is formed from the same material as the primitive kidney or mesonephros, which also has a dual origin, in part from a series of diverticula from the Wolffian duct at a higher level (more cephalad) than the special diverticulum of the metanephros, in part from the nephrogenic tissue. While the metanephros reaches its full development the mesonephros atrophies or is utilized in the building of other structures.

Most of the adherents of the malformation theory have explained the kidney cysts either as arising from actively secreting mesonephric elements which have failed to atrophy and have been incorporated in the permanent kidney, or as being due to a failure of union of some of the secretory and the collecting or excretory elements of the permanent kidney. The former view has been supported by Shattock, Sutton and others; but in view of the fact that the meso- and metanephros are homodynamic organs, according to Schreiner and others, it would seem to be impossible to identify any mesonephric rests if they should occur in the kidney, unless by some extraordinary good fortune a specimen could be secured of a particular stage of intrauterine development, in which this abnormality was being developed. The second view has found many supporters. Thus Ribbert found in some areas of cystic kidney tissue glomerular and tubular cysts, but no convoluted tubules. Rückert applies the malformation theory to unilateral as well as bilateral cystic kidneys in the adult as well as in the new-born.

The most recent important contribution to the subject of cystic kidney and liver is the previously-mentioned article by Dunger. This writer supports the malformation theory and lays special stress on an etiological factor which he thinks plays an important part, the hereditary predisposition. He describes two cases of cystic kidney occurring in the same family, in mother and daughter, the immediate cause of death in both being cerebral apoplexy. In both cases the gross and minute changes were about the same and corresponded pretty closely to what had been observed by Nauwerck and Hufschmied, Von Kahlden and others, and explained by them as cases of cystadenoma. Dunger also speaks of the clinical symptoms and the difficulty of diagnosis, which has been made only nine times. He thinks the family history may sometimes aid in the diagnosis. He finds twelve instances on record of cystic kidney occurring in two generations, which is a considerable number considering the rarity of this disease. Its occurrence in two or more children of the same parents is more frequent. Some of the most remarkable instances mentioned by Dunger are the following: Virchow's case of four children of the same mother; a case of five children of the same mother; a case in which father, son and a nephew were affected, another nephew having a double thumb; a case in which father,

son, and a sister were affected, some of the other children also having symptoms of the disease; another case like the preceding except that two sisters of the father were affected.

Dunger's most important conclusions are as follows: (1) Cystic kidney is always congenital, also when we find it in adults. At times it may be so far advanced in utero that the child cannot be delivered normally, or dies early; at times it may not reach any great development until late in life. (2) The association with other malformations and the hereditary tendency support the malformation theory. (3) The most likely explanation is either a failure of union between the two elements concerned in the development of the kidney, or an incoordinate development of mesoblast and hypoblast, as suggested by Borst. Further to illustrate his views Dunger describes two cases of cystic kidney occurring in infants. In the first, the glomeruli seemed to communicate directly with the collecting tubules, there being no evidence of convoluted or looped tubules. (This reminds us of Ribbert's case.) There was no evidence of any inflammatory or neoplastic process, and Dunger cites this as a case of cysts due simply to a maldevelopment. In this case there were also cysts of the liver, evidently due to a proliferation of bile-duct epithelium.

In the second case, there was also no abnormal proliferation of epithelium. There was a great excess of connective tissue, but Dunger does not regard this as excluding the malformation theory. The number of tubules, especially of collecting tubules, was much reduced, but glomeruli were found everywhere. Some tubules were found to have a blind ending. A great many of the cysts contained normal glomeruli. Dunger considers this case as similar in many respects to those described by Virchow as a papillary atresia, but interprets some of the findings as evidences of a malformation.

From a review of these different cases and theories advanced to explain them it seems evident that not all cases presenting the macroscopical appearances of so-called "cystic degeneration" or "gros rein polykystique" can be explained by any one of the theories advanced. This seems, however, to have been attempted. Thus the adherents of the cystadenoma theory have claimed that the inflammatory processes, *i.e.*, connective tissue proliferation, etc., when present, are secondary to an abnormal proliferation of epithelium, and the adherents of the malformation theory have considered the excess both of connective tissue and epithelial growths, when present, as secondary to or indeed as constituting a part of a maldevelopment.

Evidences of inflammatory processes which might lead to the formation of retention cysts have not been found in all cases; epithelial growths suggestive of cystadenoma have not been uniformly present; direct evidences of any maldevelopment have been found only by a few observers, perhaps because they are so easily overlooked; possibly this last theory might be the correct one in many cases. The hereditary factor has been made to harmonize with all of the three principal theories; certainly, heredity may predispose to inflammatory processes, to neoplasms, and to malformations. In short, each of the different theories seems to have found cases which admirably illustrate and justify it, while some cases present such a variety of appearances that they may be pressed into service by the adherents of quite opposite theories with equal advantage.

In regard to cysts of the liver the literature is more scant, perhaps because the process of their origin seems to be simpler or because fewer cases have been found. The cysts, except the largest ones, have generally been found to be lined by an epithelium of short, cuboidal cells like those of the bile ducts. At the same time there has been found an active proliferation of bile-ducts, and the cysts have been thought to be formed by a dilatation of the proliferated bile-ducts; in fact, the gradual transition of these bile ducts into cysts has been pretty definitely traced. Nauwerck and Hufschmied, among others, consider the process as cystadenomatous. The bile ducts proliferate chiefly interlobularly, but tend also to invade and replace the lobules. They are usually surrounded by a great deal of fibrous connective tissue, which some have considered as evidence of a true cirrhosis, while others have considered it as arising secondarily to, or coordinately with, the epithelial proliferation.

As to the etiology of these cysts we are, as in the case of the kidney, confronted by three chief theories: (1) The inflammatory theory. In objection to this theory it is urged by Still and others that neither in biliary cirrhosis nor in congenital obstruction of the larger ducts is there any proliferation of bile ducts with cyst formation. On the other hand, there is no jaundice in cystic liver, and no bile was found in the cysts by Still, Nauwerck and Hufschmied, or Von Kahlden. (2) The new formation theory, already mentioned. (3) The developmental or malformation theory, which is generally credited to Still. The excretory part of the liver is developed from a diverticulum of the intestine somewhat in the same manner as the corresponding part of the kidney is developed from a diverticulum of the Wolffian duct. Still assumes that some of the branches of the liver diverticulum fail to become differentiated into bile-ducts and, persisting, develop into cysts, surrounded by masses of fibrous tissue derived from mesoblast which failed to become properly differentiated into secretory, vascular and interstitial tissues.

Borst's theory of an incoordinate development of hypoblast and mesoblast, which he applies to both liver and kidney cysts, seems to be the same idea differently expressed. In re-

gard to the association with kidney cysts, Still in 1897 found this relationship in 35 recorded cases and added two more. Lejars, quoted by Hektoen, in 1889 found 17 cases out of a total of 63 instances of cystic kidney.

Case I.—Mrs. R., housewife, aged sixty years, died December 4, 1904, the clinical diagnosis being carcinoma of the stomach. I am indebted to Dr. Marie Olsen, who was occasionally consulted by this woman and attended her before death, for the clinical history, which, though incomplete, is quite interesting. The patient was a chronic invalid for many years. As a young woman she had multiple carbuncles of a very chronic type and was troubled with metrorrhagia. There was evidence of serious kidney lesions several years before death; pus, blood, albumin, and casts were found in the urine. The patient had consulted an oculist for rapidly failing vision; she was much troubled with vomiting; her complexion was "muddy," her breath exceedingly foul, and she was very cachectic.

She had complained for several years of distress in the region of the liver; some palpable swellings there had disappeared with some relief of local symptoms after massage (Traumatic rupture of cysts?). Swellings had also been palpated in the flanks. The patient believed herself to be suffering from cancer. A sister died some years ago, supposedly from cancer. She had presented very similar symptoms; Dr. Fenger had seen the case and had refused to operate. No autopsy was held in this case, although the patient had suggested that one should be held. The two sisters had at times spoken of their mother, who died in Germany, as having been a chronic invalid. The autopsy in the present case was held by Dr Bassoe, and the anatomic diagnosis was as follows: Cystic disease of the liver and both kidneys. Multiple suppurating cysts of the liver. Hypertrophy of the left ventricle of the heart. Edema and hypostatic congestion of the lungs. Diffuse bronchitis, chronic gastritis, uterine polypi, healed tuberculosis of the apex of the lung, localized fibrous pleuritis, corset constriction of the liver.

The autopsy record contains the following description of the liver:

"The liver is of abnormal shape, the anteroposterior diameter being the greatest. There is a constriction on both sides 10 cm. behind the anterior edge, at the points where the organ was in contact with the costal margins. The anteroposterior diameter of the right lobe is 28 cm., of the left lobe, 23 cm. The lateral diameter of the whole organ in front of the constriction is 19.5 cm. From above downward, the greatest dimension is 16 cm. near the posterior margin. The upper surface is uneven, due to the presence of a large number of cysts, which vary in diameter from 1 to 6 cm. They are scattered over the upper surface except in front of the constriction mentioned. Most of the cysts are translucent and on section are found to contain clear fluid. A few of the large cysts are opaque and dark red with reddish-black contents. Several dozen of the smaller cysts are yellowish-white and contain a whitish fluid of the appearance of thin pus. The inner surface is also the seat of a large number of cysts which, however, occupy a comparatively small part of the entire surface, as they are much smaller than those on the upper surface, the largest measuring 2.5 cm. in diameter. Between the cysts the surface is of a light brown color with distinct lobular markings.

In section the part behind the constriction mentioned is found to be honey-combed with cysts, the largest of which is located in the posterior part of the right lobe and measures 10 cm. in diameter. It has a thin fibrous lining everywhere, and is partly subdivided by incomplete partitions. Several small cysts project slightly into its interior. Many small cysts containing a yellowish fluid are seen on the cut surface and also several apparently solid yellowish areas 1 to 2 mm. in diameter. The liver tissue proper is of a brownish-gray color, with distinct lobular markings. The gall-bladder is of normal size and contains fluid bile. There are no concretions in the gall-bladder or the ducts. The diameter of the hepatic duct coming from the right lobe is 1 cm., that of the cystic duct also 1 cm., that of the beginning of the common duct 18 mm. No communication between the hepatic ducts and any cysts is noticed. The liver weighs 1,400 gms., after the evacuation of several large cysts."

The kidneys are described as follows:

"The right kidney unopened weighs 810 gms. and measures 23 x 9 x 8 cm. Its surface is everywhere composed of translucent, bluish-gray, opaque cysts varying from 1 mm. to 8 cm. in diameter. There is a distinct hilum into which cysts project. The cut surface is everywhere honeycombed with cysts varying in diameter from 1 mm. to 5 cm. There is no distinction between cortex and medulla. Only in a few places beneath the capsule a small amount of light-grayish kidney tissue can be recognized. The capsule is very adherent and cannot be removed without rupturing a large number of cysts. A pelvis is present into which large, dilated calices open. The pelvis itself is not dilated. The fluid within most of the cysts is mixed with blood.

"The left kidney weighs 700 gms. and measures 21 x 9 x 7.5 cm. Its surface is everywhere covered with cysts, the largest of which measures 7 cm. in diameter. The cut surface resembles that of the right kidney, being honeycombed with cysts. The pelvis is dilated and possesses distinct and dilated calices. There is little blood mixed with the cyst contents. The ureters are of normal size, as is the urinary bladder."

(To be Continued.)

A COMPARISON OF METHODS OF LAVAGE WITH THE SIPHON TUBE AND POLITZER BULBS.[1]

BY JOHN P. SAWYER, M.D.,
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IN determining an ectasia or an atony of the stomach our criterion is the test of performance of muscular function as measured by residue of known food found after known periods of time. That this be accurate it is necessary that the amount obtained in the test be as nearly as possible the whole amount at the time present in the stomach. All agree that the recovery of this whole amount is difficult and often not accomplished, especially in the very group of patients in whom it is particularly desirable.

To meet this difficulty by the method of expression commonly used, various modifications have been proposed. Aspirators are numerous, and yet in the popular forms much gain in efficiency can hardly be claimed. Neither Fridlieb's, Boas' nor Straus' exerts more than an interrupted or slight aspiration. The application of a Politzer bag recommended by Ewald, arranged by Kuttner with a hard rubber connection piece, separable for convenience, is the most efficient simple form of aspiration.

The fact that the expression method leaves something to be desired even for the withdrawal of test meals is shown by Fleiner's recommendation, endorsed by Riegel, to have the patient, after expression in the sitting position, lie down for the purpose of obtaining a further quantity likely to be gained after all possible has been expressed by the atonic stomach in the upright body position. It needs but trial in a few cases to convince the investigator that a considerable amount can be withdrawn by the bulbs after all possible has been expressed in the sitting and reclining position.

As examples of the comparative efficiency of expression and aspiration of these bulbs I give a few figures of a trial made on the following plan. They can be multiplied indefinitely but are simply illustrative. In the first trial the patient, thoroughly used to expression and use of the tube, with a considerable motor insufficiency, four hours after the breakfast gave 95 c.c. by expression, and a further quantity of 40 c.c. was obtained by the bulbs. (Expression in the sitting and lying position.) An error of over 30 per cent. is possible by the expression method.

In the second example the patient used to expression and the bulbs, afforded 5 c.c. of thick mucus by the expression in sitting and lying position and 35 c.c. in addition was withdrawn by the bulbs. In this case but 12.5 per cent. of the recoverable stomach contents was obtained by the expression method, and this case also illustrates the advantage of the bulbs in the case of the tenacious mucus of the catarrhal process, in that much shorter tubes afford less opportunity for retarding the flow from the stomach by adhesion of the mucus to the walls of the tube.

The third example is that of a patient considerably used to the tube in whom 60 c.c. was obtained by expression in sitting and lying position, and the use of the bulbs with manipuation gave 20 c.c. additional. In this case 75 per cent. of the stomach contents was recovered by expression.

What is found in practice with the siphon expression in recovering food residue applies also to its use in lavage. In the ordinary sitting position and also in the horizontal position siphoning and expression permit in many cases considerable quantities of water to remain in spite of all reasonable effort. In upright positions the cardiac portion of the stomach often escapes the washing undertaken. Thorough cleansing of the stomach surface is accomplished, if at all, in considerable time and with fatigue to the patient. This thorough cleansing is often not obtained, especially when there is a catarrhal secretion of the membrane. The water goes into the stomach from the tube and back with little motion or current to perform the mixture necessary to establish the cleansing desired. These difficulties are overcome with ease for the patient, thoroughness in the result, speed and satisfaction to the physician or nurse, by using the bulbs for lavage as well as for aspiration of test meals, with manipulation of the stomach, shaking and mixing the solution used with the stomach contents, and later, upon the thoroughly cleansed mucosa.

I use the simple Politzer bulb with the glass connection fitting into bulb and tube. An empty bulb and two or three filled with solutions which are to be employed in succession as desired by the one giving the treatment, are provided. I find it most efficient to have the patient always in the reclining position, clothes thoroughly loosened. The food residue having been aspirated as completely as possible with an empty bulb, a bulbful of solution, medicated as desired, is introduced slowly into the stomach, and free, active manipulation of the anterior abdominal wall over the region of the stomach is used with sufficient energy, sometimes also shaking the posterior surface of the stomach, especially in conditions of atony or ectasia without ptosis. By this is produced a considerable movement of the liquid within the stomach useful for thorough cleansing and bringing the drug in close contact with the cleansed membrane. Then I allow the contents to be withdrawn in the aspirator which has been controlled by pressure with the hand till this time, and cleansing of the viscus can be accomplished more thoroughly, in less time, with less fatigue to the patient, than I can accomplish it by the use of the siphon tube. That the whole quantity used as a wash is withdrawn is seen by the filling of the bulb. The patient is freed from efforts at

[1] Read before the American Gastro-Enterological Association, New York, April 24 and 25, 1905.

expression, and lying as quietly relaxed as possible gains much in comfort.

With reference to the thoroughness I would call attention first to the recognized fact that frequently after the water is obtained clear in ordinary lavage there will sometimes be a marked rush of apparently pure food residue which has escaped the ordinary attempt at cleansing. This difficulty I do not find in practice with the procedure described.

As to the comfort of the patient the testimony of those in whom the two methods have been tried is strongly in favor of this method as easier and more cleanly; and they emphasize the freedom from straining and the annoying gagging or retching sometimes associated with expression.

As to the possible danger of injury, it is subject to the ordinary precautions which we would use in states of active inflammation of the membrane, in conditions of gastric ulcer, perigastritis and the like, which control our application of the siphon tube. Bits of membrane, blood, etc., are not more often found in washing by this method than by expression. My judgment on the basis of five years' routine use is that by the avoidance of straining by the patient the possibility of damage from this cause is lessened.

As to convenience and cleanliness for the operator, my own experience in this respect has been confirmed by many of my colleagues and assistants who using the procedure, express themselves as highly pleased with its convenience, speed and comfort.

I wish to draw especial attention to the advantage in lavage of having the patient reclining with loosened clothes, and then making use of free manipulation of the stomach wall to secure a more thorough cleansing and the more thorough application to the mucous membrane of suitable solution chosen for direct medication. In this fashion all the solutions used may be employed with a reasonable certainty that all portions of the stomach membrane are reached in the treatment and that all of the solutions injected are withdrawn.

MEDICAL PROGRESS.

PATHOLOGY AND BACTERIOLOGY.

Spontaneous Retrocession of Osteomalacia.—The course of this disease is considered to be progressive, only to be arrested in certain cases by ovariotomy. A case reported by P. Berger (*Comptes Rendus*, March 27, 1905), was that of a boy, who in 1895, after an osteotomy for the relief of bow-legs, began to develop marked signs of osteomalacia, of which the bow-legs had probably been an initial symptom. There was a progressive softening of the bones of the extremities, accompanied by loss of mobility, pain, incontinence of urine, which continued for three years, when, in 1898, there occurred a sudden arrest in the cause of the disease. The bones of the pelvis, neck, spine, and head, were not affected by softening. Since that time there has been a gradual improvement, a return of the bladder-function, and a recovery of the use of one arm. A comparison of radiographic records showed a recalcification of the latter. During the stage of progressive evolution of the disease, the excretion of lime salts in the urine was enormous, and during the stage of arrest, the amount, although diminished, was still large. At this time the X-rays revealed a vesical and a renal calculus, although there were no symptoms pointing to these complications.

Experimental Acid Dyscrasia.—An investigation of the relationhip between acidosis and natural resistance to infection was made by M. Charrin (*Comptes Rendus*, April 10, 1905). Three series of rabbits of the same weight and health were experimented upon. In the first, injections of sodium chloride were made intravenously; the second received injections of lactic acid, while the third were left alone. A little later all of the rabbits received the usual lethal doses of tuberculin. Those that had received the lactic-acid injections were the first to die. This result indicated to the author that the presence of too much acid in the blood diminishes the resisting power of the organism. Lactic acid is not the only acid that will do this. The author sees in the recent enthusiasm for the lactic-acid cure of certain diseases, as dyspepsia, gastro-enteritis, etc., with kefir, buttermilk and other foods containing lactic-acid, a possible element of danger.

Hyperplasia of the Chromophile Cells of the Hypophysic as the Cause of Acromegaly.—The apparent lack of similarity in the pituitary changes described in cases of acromegaly, the absence of evidences of acromegaly in instances of marked disease of the hypophysis from syphilitic and other chronic inflammations of the granulomatous type, the contradictory results following complete destruction or experimental removal of the gland, and finally, the occasional observation of cases of acromegaly in which the gland is of normal size and apparently not diseased, have inclined many investigators to discredit Marie's theory that disease of the hypophysis is to be regarded as the causative factor in acromegaly. It has been suggested that enlargement of the gland is secondary to enlargement of the sella turcica. D. D. Lewis (*Bull. Johns Hopk. Hos.*, May, 1905) after a careful histological study of the pituitary body in a case of acromegaly, is inclined to the view that the anatomical lesion present in the hypophysis is a hypertrophy and hyperplasia of the chromophile cells. In this view he is supported by the previous findings of Benda, who reported the histological changes in four cases of acromegaly and decided that there is an increase of the chromophile cells in the pituitary body, indicating an excessive activity of the gland. He also considers that mistakes in anatomic diagnosis account for the lack of uniformity in the descriptions of the lesions of the hypophysis associated with the disease. These statements are confirmed by those previously made by Le Count and Brooks, that many of the cases reported as sarcoma, angiosarcoma, lymphadenoma, etc., of the hypophysis are simply instances of hyperplasia or adenoma. The following pathologic conditions have been described in the hypophysis in those cases of acromegaly in which it has been enlarged and obviously diseased; *e.g.*, simple hypertrophy, twice; adenoma, seven times; sarcoma (variety not specified), five times; large-cell sarcoma, six times; cystic tumors, twice; hypertrophy and colloid degeneration; marked colloid degeneration and hemorrhage; sarcoma or glioma; spindle-cell sarcoma; cylindroma; round-cell sarcoma; glioma, adenoma with enlargement, one each. Further cases in which there have been found pathologic conditions of the hypophysis without any symptoms of the disease, are as follows: Cases of adenoma by Erdheim and Breitner; tumor (variety not specified), by Pon-

fick; simple hypertrophy by Packard; telangiectatic sarcoma by Cagnetto; sarcoma of the periosteum or dura of the sella turcica compressing the hypophysis and teratoma of the infundibulum by Benda; psammoma by Woollcombe; gumma by Beadles and Hektoen; tuberculosis by Beadles; and sarcoma by Hinsdale and, finally, a case by Bassoe in which the hypophysis weighed 5.9 gr. and another in which a small calcareous nodule was found in the gland, both without symptoms of acromegaly. Other theories mentioned by writers are (1) nervous theory; (2) theory of growth anomaly; (3) thymus theory; (4) genital theory and (5) thyroid theory. The author concludes that all these theories have met with serious objections and considers that there are many factors in lending support to the theory that acromegaly is caused by an excessive function of the cellular elements of the anterior lobe of the hypophysis.

OBSTETRICS AND GYNECOLOGY.

Technic of Operations for Uterine Fibroids.—J. R. GOFFE (*Am. Jour. Obstet.*, May, 1905) offers the following technic as satisfactory in operations for uterine fibroids. After opening the abdomen, while the tumor is *in situ*, the ovary and tube on one side are drawn up and the ovarian artery controlled by passing a ligature through the top of the broad ligament near the uterus. One end of this ligature is rethreaded and the broad ligament transfixed a second time near the tumor just above the uterine artery. A ligature having been placed near the horn of the uterus, the broad ligament is cut down to the point of transfixion, the tumor rotated, and the same method pursued on the other side. After delivery of the tumor through the wound, the lower angles of the incisions are connected by anterior and posterior oval incisions through the peritoneum covering the uterus. The flaps are dissected down, the one in front carrying the bladder and ureters into safety. One end of the original broad ligament ligature is passed inside of these flaps close to the cervix on each side and the uterine artery ligated. The tumor is then cut away on a level with the internal os, the canal disinfected with pure carbolic acid, and the flaps stitched over the stump and all the ligatures on either side. This method involves a minimum loss of blood, is easy and permits of rapid execution. Myomectomy, in the absence of definite contra-indications should always be preferred to hysterectomy. The vaginal route is to be preferred when the tumors are less than three inches in diameter. The elements of danger in operations for fibroid tumors are: (1) The wounding of the bladder, which may be carried high up by the tumor. (2) Wounding the ureter in ligating the uterine artery. The carrier should be passed downward and inward, parellel with the ureter, hugging the cervix. (3) Insufficient peritoneal flaps to cover the uterine wound in myomectomy. To allow for retraction of the tissues after shelling out the tumor, it is best to incise directly over its summit and perform any necessary trimming later. (4) Wounding the intestine in separating adhesions. Any necessary sacrifice of tissue must be at the expense of pathological mass rather than of the intestine.

Peripheral Paralyses of Pregnancy.—The peripheral paralyses of pregnancy may be divided into myopathic and neuritic. According to R. v. HOESSLIN (*Münch. Med. Woch.*, April 4, 1905), the paralysis of osteomalacia is the most important representative of the former group. The muscular changes here are not a result of the bone affection, but are probably caused by the same toxic agent. The chief symptoms are lassitude, tremor and muscular pains; later there is a tendency to the formation of contractures in the adductors of the thigh. The iliopsoas, quadriceps and the adductors of the thigh are paralyzed early, giving rise to the characteristic gait. The condition resembles very closely the juvenile form of progressive muscular atrophy, but the pseudo-hypertrophy is absent. A second form of myopathic paralysis is due to polymyositis, such as may occur under normal conditions as well as after severe puerperal sepsis. Neuritic paralyses are classed by the author as follows: (1) Traumatic neuritis puerperalis, caused by instruments, particularly the forceps, or by prolonged pressure of the head. There are a large number of cases, however, where the cause of the paralysis cannot be discovered. The nerves chiefly affected are the crural and the obturator. Severe pains often accompany the paralysis, which may last weeks or months, but usually has a good prognosis. (2) Neuritis puerperalis per contiguatem. Inflammatory processes in the pelvis will here extend downward and set up an inflammation in the nerves. This form occurs some time after the birth, and is accompanied by the signs of inflammation in the other tissues. (3) Neuritis puerperalis post infectiosa. It is a strange fact that this type of neuritis is more common after the milder forms of febrile puerperal affections than after actual sepsis or pyemia. The ulnar and median nerves are the ones chiefly involved and other localizations are extremely rare. The paralysis is typical, but in the majority of cases complete restitution sets in after several months. (4) Toxic neuritis gravidarum et puerperarum. The cause here is probably autointoxication, and in a very large percentage hyperemesis has been present or develops simultaneously. This type also prefers the median or ulnar nerves, but cases are on record where the facial, trigeminal or the optic nerve were paralyzed. In exceptionally severe cases there may be a generalized polyneuritis with symmetrical muscular atrophy of all the extremities. An important complication of this condition is Korsakow's psychosis. The prognosis depends upon the extent; in severe cases the mortality may be as high as 20 per cent. Interruption of pregnancy may seem indicated, but this is often without avail, since the toxins also seem to form during the puerperium. Operation should therefore be restricted to those cases where the life is actually in danger.

Care of Premature Infants.—There are very few cases of the survival of infants born before the twenty-seventh to the twenty-eighth week of pregnancy. The premature baby is an undeveloped baby, the lungs contain little alveolar structure and are prone to congestion; the pulse and respiration are irregular from lack of nervous control and development. The stomach capacity ranges from 5 c.c. to 30 c.c., digestive functions are feeble, that for sugar being best developed while the amylolytic function is practically non-existent. The heat regulating centers are poorly developed, consequently extremes of temperature are dangerous. On account of the greater heat loss premature infants require one-fifth to one-fourth more calories per kilo than do normal infants, but, in spite of greater need for food, much to their disadvantage they are less able to take and digest it. In regard to the care of premature infants J. L. MORSE (*Am. Jour. Obstet.*, May, 1905) states that two objects are to be attained: To keep the baby alive, and to develop its organism. The infant should be protected from noises, bright lights, and unnecessary handling. For the maintenance of animal heat incubators and substitutes for incubators are used. Most incubators may be made to maintain a constant temperature, but none of them provide sufficient pure, fresh,

warm air. The best substitute is a crib basket, padded with cotton. The top should be covered with a blanket which reaches just below the baby's neck. The desirable temperature (90° to 95° F.) may be maintained by hot water bags or bottles, the temperature being taken from a thermometer wrapped in the baby's clothing. The temperature of the room should be 80° to 85° F. The baby should be oiled every three days, but not washed, and wrapped in a quilted gown with a hood. Absorbent cotton makes a satisfactory substitute for a diaper. The best food for premature babies is breast milk, diluted at first with one to three parts of water. Modified milk with low ingredient percentages is the best substitute for breast milk—5 c.c. should be given at first at 1½ hour intervals, the amount of milk and the intervals being gradually increased. When the infant is too feeble to take food from a nipple it may be fed with the "Breck Feeder," or a medicine dropper. When stimulation is indicated one or two drops of brandy, strychnine (1-1,000 gr.) and oxygen may be useful. Babies under two pounds usually die; the prognosis is very fair when over four pounds. A slight elevation of temperature is to be expected when the infants are doing well; those doing badly usually run a subnormal temperature. Sudden death may occur without apparent cause, hence it is never safe to consider premature infants out of danger until they are thriving under normal conditions.

THERAPEUTICS.

Iodide of Silver in Urethritis.—Considerable interest attaches to a proposal by E. H. Siter and A. A. Uhle (*Univ. Penn. Med. Bull.*, May, 1905), to employ this in preference to the other better known salts of silver. As it is not soluble, it becomes necessary to suspend it, and this was found to be best accomplished by mucilage of quince seed. This salt is not *proprietary*, and the exact strength can be controlled better than nitrate of silver. It does not stain, and is less irritating, therefore stronger solutions can be used. The writers claim that it reduces the acute stage to a minimum and relieves symptoms very quickly. They have used it in over a hundred cases, several typical ones being reported, and its effects were particularly good in dispensary patients who cannot be treated under ideal circumstances. The drug is given in from five to ten per cent. injections, three to four times daily. It was particularly noted that the ardor urinæ subsided within the first day and the discharge disappeared well within a week. In cystitis of prostatic origin or after prostatectomy it also yielded good results.

Treatment of Basedow's Disease.—That the antithyroidin of Möbius seems to have acquired a lasting place in the treatment of exophthalmic goiter, is evident from two articles contained in the *Münch. Med. Woch.*, May 2, 1905. Glomer gave the serum internally (0.5 c.c.) three times daily, to a patient suffering from general paresis, complicated by Basedow's disease. The pulse improved at once and became slower, the goiter and the exophthalmos were less marked after eleven days, and the tremor and Graefe's sign disappeared almost completely. As soon as the treatment was stopped the symptoms reappeared. R. Durig recommends much larger doses (up to 150-210 drops daily), even though slight after-effects (headache, apathy) may appear. The rectal application is indicated where the serum is not well tolerated by mouth, but somewhat larger doses are then necessary.

Graves' Disease and Parathyroid Therapy.—James J. Walsh (*Am. Med.*, May 20, 1905) reports four cases of Graves' disease treated with desiccated parathyroids on the principle suggested by Gley, of Paris; Munk, of Berlin, and confirmed by MacCallum, of Baltimore, that it is the absence of the parathyroid glands in the neck which produce the symptoms of Graves' disease. In two mild cases the remedy seemed to produce a good effect. Walsh concedes suggestion plays a large rôle in the relief, and in one case seemed to cause an exacerbation of In two severer cases the remedy failed utterly to give relief, and in one case seemed to cause an exacerbation of the symptoms somewhat as if thyroid extract were being given. It is not absolutely certain that the parathyroid material was entirely free from all admixture with thyroid substance, though it was very carefully prepared for these cases.

Tolerance to Nitroglycerin.—According to D. D. Stewart (*Journal A. M. A.*, May 27), an excessive tolerance to nitroglycerin can be readily acquired if care is not taken to avoid a too rapid increase of the dose, hence the drug, though intelligently employed, is often of little service. He refers to earlier articles of his on the subject, and especially to a case beforementioned in *Journal A. M. A.*, in which 50 minims of a 10 per cent. solution were taken daily without any very marked effects. The best rule for giving the drug for its effects on blood pressure is, in his opinion, to administer it four times a day in dose just sufficient to produce the slightest feeling of fulness in the head or to slightly quicken the pulse. If more than this is given, an undesirable tolerance is likely to be established.

PRESCRIPTION HINTS.

Loss of Appetite.—Dr. H. C. Wood recommends for failure of appetite, weak digestion and the general debility of warm weather the following stomachic:

℞ Acidi nitrohydrochlorici ..... ℥ii
Aquae ..... ℥i½
Strychniæ sulph. ..... gr.i
Misse et adde
Tincturæ cardamomi comp... } aa, q.s. ℥vi
Tincturæ gentian. comp..... }
M. Sig. Dessertspoonful after meals in water.

Pruritus Ani.—

℞ Hydrargyri chloridi corrosivi ..... gr.½
Ammonii chloridi ..... gr.iii
Acidi carbolici ..... ℥i
Glycerini ..... ℥ii
Aquæ rosæ ..... ℥v
M. Sig. Apply night and morning.

Amenorrhea.—In women suffering from amenorrhea due to deprivation and depressing hygienic surrounding, the late Dr. Goodell, of Philadelphia, placed great reliance in the "Mixture of the Four Chlorides."

℞ Hydrargyri chloridi corrosivi..... gr.i
Liquoris arsenic chloridi ..... gtt.xlviii
Tincturi ferri chloridi..... } aa ℥iv
Acidi hydrochloridi diluti ..... }
Syrupi zingiberis ..... q.s. ad ℥vi
M. Sig. Dessertspoonful in water after meals.

For Prickly Heat.—

℞ Zinci carbonati precip. ..... ℥iv
Zinci oxidi ..... ℥ii
Glycerini ..... ℥ii
Aquæ rosæ ..... ℥viii
M. Sig. Apply locally.

For Dermatitis Venenata from Poison-Ivy.—

℞ Sodii hyposulphitis ..... ℥i
Glycerini ..... ℥i½
Aquæ ..... q.s. ad ℥viii
M. Sig. Keep constantly applied.

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REAPPEARANCE OF YELLOW FEVER.

There is a peculiar irony in the fact that while our sanitary authorities were so greatly exercised over a possible mote in Havana they should have been so unconscious of the beam in New Orleans.

In 1493 when Columbus landed in the island of Hispaniola he lost the greater part of his crew within a year from a disease now identified as yellow fever. From that time on, repeated and severe epidemics have originated in the West Indies, and spread with somewhat modified virulence to Central and South America, occasionally reaching the United States. The most serious epidemic which this country ever experienced was that of 1878-79, when the disease assumed epidemic proportions as far north as Tennessee.

The ignorance which prevailed at that time in regard to the etiology of the disease interfered materially with the effectiveness of quarantine. The most rigorous isolation of cases and elaborate precautions as to the disinfection of "fomites" proved strangely unavailing. Many and various theories were advanced to explain the curious statistics relating to the spread of the disease, the incongruities of which were too marked to escape notice. For instance, cases occurring among refugees in Cincinnati, Ohio, showed no tendency whatever to spread.

For years persistent efforts were directed toward discovering the specific organism, and a number of investigators, Freiere and Saranelli among others, claimed success. It was Dr. Finlay, of Havana, who in 1881 suggested that the infection might be propagated by the mosquito, but this suggestion was not worked out until nearly twenty years later, when Drs. Reed, Carroll, Agramonte and Lazear convened as a Board of Medical Officers for the purpose of studying the acute infectious diseases of the Island of Cuba. It is to the tireless patience, the devoted self-sacrifice and the inspired intelligence with which they pursued their task that the world owes its present knowledge of the etiology of yellow fever, and consequently of the means best calculated to check its ravages. They demonstrated conclusively that a genus of mosquito, the *Stegomyia fasciata*, acts as an intermediary host in the propagation of the infection. To be sure, the identity of the specific organism is still a matter of dispute, but whatever it is, the mosquito is an essential factor in its life history. Consequently, the investigations which have proved of practical value are those dealing with the *Stegomyia fasciata*.

The *Stegomyia fasciata* is essentially a house mosquito, and is seldom conveyed aerially more than 100 yards unless by strong currents of wind. It breeds in cisterns, water jars and pools. It will not feed in strong sunlight nor in the dark. It will live for 154 days or longer unless deprived of water, when it succumbs within five or six days. The distribution is general, from 36° N. to 35° S. latitude on the eastern coast of America. On the western coast it is present at Panama and Guayaquil, and probably from the latter place to Acapulco. In the United States it is found all along the coast and the low plains of all the Southern States except Maryland.

In view of these facts the prophylaxis is obvious. Its aims are twofold, namely, to destroy the *Stegomyia* and its breeding places, and to prevent those mosquitoes which do exist from becoming infected. The screening of all established or suspected cases, the abolition of open water receptacles and the draining of pools are measures which have proved effective. These should be supplemented by proper quarantine regulations. Even in the light of later discoveries, de-

tention and disinfection are still useful, not, as formerly believed, for the destruction of "germs," but in order to dispose of any infected mosquitoes which may have been transported, and to allow the elapsing of the incubation period in the case of persons who have possibly been exposed to infection. Since baggage, freight and mail matter can be a source of danger only when harboring mosquitoes, and since a period of five or six days after the packing of such parcels gives assurance that they contain no living *Stegomyia,* such matter is easily dealt with. Vessels can be considered "infected" only in the sense that they may act as a medium for conveyance of infected *Stegomyia,* and this danger is best removed by fumigation with sulphur, the insects being exterminated at the end of an hour and a half by this process.

As for cases developing during the voyage or after landing, they bring little danger to communities outside the domain of the *Stegomyia fasciata.* Within that region, however, the detention—always under screen—of suspicious cases is an item of first importance.

There is no doubt that the mosquito theory has been accepted by the medical profession of New Orleans, but it was quite another matter to arouse public sentiment to a degree that would insure its practical adoption. That the possession of this knowledge, however, creates a certain confidence among the public at large is evident by the way in which the latest outbreak is met. A slight tendency to panic, experienced in New Orleans on hearing of the visitation, promptly subsided, and there has been no attempt at general exodus such as previous epidemics have occasioned. Business progresses as usual and the authorities are dealing promptly and energetically with the situation. The continued spread of the disease thus far is doubtless due to the lack of intelligence among the inhabitants of the quarter where it has broken out. Such ignorance always constitutes a formidable obstacle in combating any infectious disease, but civilization is bound to conquer in the end, and there is every reason to believe that the scourge which threatens New Orleans will result in another notable triumph of science.

A SUCCESSFUL MUNICIPAL SANITARIAN.

A recent number of the Bulletin of the Health Department of Chicago contains, besides the notes on the state of Chicago's health, the farewell of the Commissioner, Dr. Arthur R. Reynolds, who has, for the last twelve years, so successfully managed the great western city's sanitary affairs. There is no one who is in a position to know the present state of Chicago's health and who has followed the course of sanitary affairs in that city during the last decade, who will not be ready to acknowledge how much Dr. Reynolds has accomplished for Chicago's health. We pointed out, over a month ago, the differences between Chicago and Philadelphia in the matter of the death-rate from typhoid fever. When Dr. Reynolds began his work in Chicago the city had a "bad eminence" in the matter of typhoid that made it Philadelphia's greatest rival Philadelphia's mortality from typhoid fever has continued practically unabated; that of Chicago has gradually become less and less, until, during certain weeks of the past spring, when typhoid fever is so often likely to be prevalent, no cases of the disease at all were to be found in this large city. Not all of this improvement is due to Dr. Reynolds; but undoubtedly much of the inspiration that forced politicians into the recognition of the necessity for sanitary improvements of various kinds must be attributed to him.

His methods deserve study by all who have the health of large cities in trust. His main idea was publicity for the state of the city's health and the causes of disease raging at any particular moment, and through this a crusade of education that would gradually produce an enlightened public opinion in matters of municipal sanitation. His principal merit has been that he has succeeded in doing this not only without producing enmity, but actually in such a way as to band together many hitherto discordant elements in Chicago's municipal life. Above all, Dr. Reynolds has known how to secure the cooperation of the medical profession of the city and, while working with them, to lead them to more definitely practical ideas of sanitary science and hygiene and secure their coöperation in the education of the people. The Bulletins of the Health Department of the city of Chicago have come to be recognized as important documents for the spread of practical ideas in sanitary science. While the announcement of deaths usually made in such bulletins might very well seem to preclude the possibility of their becoming interesting popular reading, Dr. Reynolds has succeeded in making them valuable auxiliary documents in his educational campaign so that they have been

eagerly taken up by women's clubs and kindred organizations and widely distributed until, as Dr. Reynolds with pardonable pride proclaimed before the Sociology Club of Chicago University, two years ago, "the average Chicago citizen is more intelligent in sanitary matters than his brethren of any other city in the country, and consequently the average duration of life in Chicago has more than doubled in a single generation."

Certain features of Dr. Reynold's work seem deserving of special mention. To him more than to any other in this country is due the recent calling of public attention to the increase in the death-rate from pneumonia and the consequent endeavor to learn more about the disease so as, if possible, to prevent its widespread ravages. He emphasized the fact that pneumonia had taken the place of tuberculosis as "the captain of the men of death," so often in the Bulletin of Chicago Health Department, that sanitarians generally found themselves compelled by popular interest to take up the investigation of this important subject. It seems not unlikely that as the result of this movement we shall learn more about pneumonia in the next few years than has been learned during nearly the whole of the preceding century. It is interesting to note that while he has been insisting so much on the place that pneumonia has come to occupy in the death-rate, tuberculosis has not been neglected, and there has been, during the last ten years, a reduction of 14 per cent. in the mortality from that disease.

Perhaps the most valuable work of the late Commisioner of Health of Chicago has been done with regard to smallpox and vaccination. Just after Dr. Reynolds assumed charge of the city's health, a terrible and costly epidemic of smallpox broke out in Chicago, and seemed to demonstrate that the protection afforded by vaccination was illusory. The Health Commissioner proceeded at once to the insistence upon proper vaccination of all the inhabitants of the city. Chicago, with its heterogeneous population exposed to frequent importation of the contagion, needed to be completely revaccinated. This was accomplished in spite of discouragements of many kinds, and even direct opposition from many quarters. As a consequence, the bulletins of the Health Department of Chicago have been in a position to demonstrate in recent years with a definiteness unknown anywhere else in the world outside of the German Empire the absolute protective value of vaccination. During the past three years the collection of vital statistics and investigation of individual cases has shown over and over again that the persons attacked by smallpox were those who had not been vaccinated or in whom vaccination had been performed so many years before that its protective and immunizing value had been exhausted. Especially was it made clear that in families where all had been vaccinated, excepting the children under the school age, these were the only ones to take the disease after exposure, and they unfortunately constituted a large proportion of the fatal cases.

There is no doubt that Commissioner Reynolds has fulfilled his duty with eminent success. Chicago's death-rate, which, when he began his work, was one of the highest among the large cities of the country, is now among the lowest, if not the lowest, of them all. The mortality has been reduced over 25 per cent., while there are other large cities in which there has been no reduction in mortality during the same period, and none have had a reduction equal to Chicago's. Even above what Dr. Reynolds has done for Chicago, however, has been and will be the example of his work for the heads of departments of public health in other large cities throughout this country. It is not from Chicago perhaps that such an example would have been ordinarily expected. That it has been given there reflects all the more credit on the man who, in spite of difficulties and political friction and municipal disadvantages in a rapidly growing city, succeeded in accomplishing so much to make life more livable, health more enduring and the generation longer in the city by the lakes.

ECHOES AND NEWS.

NEW YORK.

Plan Adopted to Ventilate Subway.—Huge fans which will carry the foul air out of the Subway, allowing a fresh volume to flow in, and openings in the roof of the tunnel are the main features of the plan which is to be put in operation at once. Hundreds of small rotary fans, Mr. Hedley explains, have been put in at all the stations.

Leper to be Deported.—Said Ben Ali, an Algerian, who arrived here on July 11, in the steerage of the steamship Philadelphia, has been refused admittance by the immigration authorities and will be deported. He was found to be suffering from a disease which, after examination by several surgeons, was pronounced to be leprosy. The Algerian has been kept in strict isolation since his arrival here.

New York Hospital to be Enlarged.—Plans have been filed with Building Superintendent Hopper for the enlargement of the operating amphitheater on the top

of the east wing of the New York Hospital, in West Fifteenth Street, into a two-story edifice of faced brick, with fire-proof galleries and floors and walls of marble and tile. It is to have an ornamental skylight and cabinets for the storage of surgical instruments. The improvements are to cost $20,000, according to the estimate of the architects, Trowbridge & Livingston.

Increase in Death Rate.—The effects of last week's hot wave are strikingly set forth in the figures issued by the Bureau of Vital Statistics for the week ending last Saturday at noon. The total number of deaths during the week was 2,119, as against a total of 1,726 for the corresponding week in 1904. Of deaths due directly to the heat, there were 151, as against only eight during the same week a year ago. Intestinal troubles, more prevalent during a heated term than any other, last week caused no less than 685 deaths, an increase of 132 over the corresponding week last year. The same deadly showing is furnished by the record of deaths from heart disease. Last week there were 109 fatal cases of heart trouble, while the week before there were but 88. For the corresponding week of 1904, the record showed 70. In the matter of cerebrospinal meningitis the hot spell seemed to be beneficial, the number of deaths from that disease being but 22 during the entire week ending last Saturday. The percentage of deaths was 28 in 1,000, as against but 23 in 1,000 during the same week in 1904.

Ignorant Mothers Taught.—In the wake of the torrid weather of the past week, there have come to the knowledge of the doctors and nurses of the Sick Children's Mission of the Children's Aid Society scores of instances of sickness and deprivation. The timely calls of the physicians and nurses of the society since their work began in June has resulted in the saving of the lives of many young babies, who were discovered to be suffering from ailments incident to the season and from the effects of improper diet. The visitors find the greatest ignorance on the part of the mothers in regard to the feeding and care of the young children. In numerous instances the doctors have found that the mothers permit their children to eat freely of cucumbers and decayed fruit. The Sick Children's Mission is putting forth every effort to teach these mothers in the so-called foreign quarters a better way, while giving the necessary medical treatment and nourishing food to the helpless babies. To meet the demands of this work, funds are needed. Checks may be made to the order of V. B. Hepburn, treasurer, and sent to No. 105 East Twenty-second Street.

City's Poor Ambulance Service.—A paper by Nathan Bijur was read at Portland, Ore., before the Thirty-second National Conference of Charities and Corrections on New York's inefficient ambulance service. He advocates the appointment by the Mayor of a commission to investigate the subject, and proposes as a temporary solution of the problem the establishment of a central ambulance bureau, to be connected with the Police Department, which can receive and record all calls, and, in harmonious working with the hospitals, provide for the promptest service possible under the circumstances. Mr. Bijur holds up New York's Fire Department as a means of comparison to show the marked deficiency in the city's really serious effort to render first aid. He called attention to the irregular disposition of the hospitals over the city, there being an entire absence of any geographical plan or method in their location. The expense involved in the establishment and maintenance of an ambulance service is no excuse for its absence or incompleteness. The cost of an ambulance, with two horses (for relays), harness and equipment, appears to be between $1,000 and $1,200. The cost of annual maintenance is about $1,000, exclusive of rental of station, and assuming the services of the surgeon to be gratuitous, or at least to be included in the general expenses of the hospital or similar institution to which the ambulance is attached.

PHILADELPHIA.

License for Recent Graduates.—As a result of the examinations held less than a month ago, 51 of the applicants were given licenses to practise medicine. Of the 36 homeopathic graduates who took the examination every one passed, while 4 of the 19 eclectics failed.

Honored by Edinburgh University.—While attending the quater-centenary celebration of the Royal College of Surgeons, at Edinburgh, Dr. W. W. Keen, of Philadelphia, and Professor of Surgery at the Jefferson Medical College, received the honorary degree of Doctor of Laws at a special graduation ceremony of the Edinburgh University. In an address he paid a glowing tribute to the Edinburgh University, which, he said, "the Transatlantic graduates regard as their academic Jerusalem."

Consumptives Barred from Attending Church.—Rumors are current that the council at White Haven, Pa., proposes to pass an ordinance which is to prevent patients suffering from tuberculosis from attending church in that town. The ordinance, it seems, is a blow aimed at the patients of the Free Hospital for Consumptives. Dr. Lawrence Flick, president of the institution, believes that such action would be the height of folly, and, in his estimation, could not be enforced, since it is a restriction of personal rights, which is unconstitutional. Dr. Flick believes there are tuberculous patients in White Haven who are not inmates of the sanatorium, and who are dangerous because they do not comply with the rules laid down for treatment in the institution.

Heat Increases the Mortality.—As a result of the prolonged hot weather, the deaths in the city numbered 608 last week, whereas during the previous week but 548 died. The weather spent its greatest effect upon children and upon the aged; of the 608 deaths, 233 were children. Insolation was responsible for 19 deaths. The greatest surprise is the evident increase in the death-rate of typhoid fever. During the week just ended 108 new cases were reported and 18 deaths occurred, whereas during the proceding week but 12 patients died. Of the cases of contagious diseases reported 21 were diphtheria and 13 scarlet fever. As has already been pointed out in this column several times, the greatest number of typhoid cases are from wards which receive water directly from the Delaware River.

CHICAGO.

Rabies.—One death from this disease is reported to have occurred at the Presbyterian Hospital on July 8. The victim was bitten by a pet dog at his home in Russell, Ky., and did not receive medical attention until too late.

Appointment of Dr. Reynolds.—Dr. Arthur R. Reynolds, until the Dunne administration Commissioner of Health of Chicago, will leave this city on August 1 for French Lick Springs, Ind., where he has been appointed resident physician and director of Thomas Taggart's Hotel.

Departure of Dr. Senn for Northern Latitudes.—Dr. Nicholas Senn, of Rush Medical College, is to have a taste of Arctic travel, and, it is said, a

share in the Peary expedition, although he will not attempt to reach the Pole. He was a passenger on the Arctic steamer Erik, which sailed recently from Cape Sabine, North Labrador, which was going with coal and supplies for Peary. The Erik will meet the Roosevelt at North Star Bay, and then return south early in September.

Lawn Fete Aids the Hospital.—The lawn fête given by the auxiliary association of the St. Francis Hospital at Evanston, to aid the charity patients, which closed July 20, was a financial success. All the booths were patronized liberally and the attendance was unusually large. The receipts exceeded $1,000, which was the amount the committee had determined to secure. The money will be used to aid patients of the hospital who are unable to support themselves until some permanent means can be found for providing for them. The hospital has been in existence five years, and although under strictly Catholic management, it is conducted without regard to the creed of the patients.

Public Health Matters.—According to the weekly bulletin of the Chicago Health Department, for the week ending July 22, 627 was the total number of deaths from all causes, an excess of 180 over the previous week—188, or 30 per cent. of the total, were of infants under one year of age, and 57, or 18 per cent. of the total, were of children between one and five years of age. These age periods were the greatest sufferers from the effects of the heat, and next to them was the other extreme of life—those over sixty years, which show an increase of more than 46 per cent. Directly and indirectly due also to the heat of the early part of the week are the 22 deaths from sunstroke; the 78 more deaths from acute intestinal diseases; 27 more from heart diseases; 24 more from consumption, and the increase in deaths from pneumonia. In this latter case the increase is of terminal pneumonia, or pneumonia terminating some form of chronic disease. Of the 150 deaths returned as due to intestinal diseases—an increase of 78 over the previous week—122, or 81.3 per cent. were among infants under one year old. During the week five deaths were reported as caused by tetanus, two of which were due to Fourth-of-July accidents. Ten deaths from tetanus have been reported since July 1, of which five were due to Fourth-of-July accidents.

GENERAL.

A New Anesthetic.—Two German scientists announce in the *Deutsche medicinische Wochenschrift* the discovery of a new anesthetic having all the virtues of cocaine without its secondary ill-effects. The new substance is called "Allypine." It deadens pain by local application and does not contain poison.

Dental Congress at Portland Fair.—The Lewis and Clark Dental Congress began a four days' session July 18, with more than 300 members of the profession in attendance. Eight Western States were largely represented, fifteen States in all sending delegates. There were also dentists present from Singapore, Honolulu, Canada, New Zealand, and Alaska. The officers of the Congress are Dr. Norris R. Cox, President; Dr. Arthur W. Chance, Secretary and Treasurer.

Honored at Edinburgh.—At a special graduation ceremony at Edinburgh University on July 22, the honorary degree of doctor of laws was conferred on Ambassador Paul Cambon, Prof. William Stewart Halsted, surgeon-in-chief of the Johns Hopkins Hospital, and professor of surgery in the Johns Hopkins University of Baltimore; Prof. I. H. Cameron, of Toronto; Prof. F. J. Shepherd, of Montreal, and Prof. William Williams Keen, professor of surgery, Jefferson Medical College, all of whom were attending the celebration of the quater-centenary of the Royal College of Surgeons.

For Mosquitoes, Maryland.—Thoroughgoing investigation of the mosquito, its haunts and its habits, which has been in progress for some time under the direction of the scientific department of the Johns Hopkins University, has resulted in the discovery officially announced by the Hopkins authorities, that Maryland has the largest mosquitoes to be found in this country. No exception is made of New Jersey. The Maryland mosquito is positively pre-eminent for size and ferocity. The investigation also shows that Maryland breeds specimens of almost every kind of mosquito, including the malaria-breeding kind.

New Hospital for East Boston.—An emergency hospital is now assured for East Boston. Mayor Collins affixed his signature July 24 to the order which passed both branches of the city council unanimously, providing for an emergency hospital in that section of the city. The order calls for an appropriation of $30,000, and to this amount is added about $11,000, the bequest of the late Ann E. Taggard, who stipulated in her will that the money should be used for hospital purposes in the East Boston district. The proposed hospital is to be built under the supervision of the trustees of the City Hospital.

Gen. Wood's Illness.—Gen. Leonard Wood, who was recently operated upon at St. Margaret's Hospital, Boston, is progressing so well that his family now expect him to be at his old home in Pocassett in a few days in comparatively good health, and ready for a trip back to his post in the Philippines. The exact cause of Gen. Wood's trouble was made public for the first time. It is exostosis of the head; an abnormal growth of bone or bony tumor upon the skull. The cause was a blow upon the crown of the head, sustained about a year ago. The operation was performed on July 5 and was entirely successful.

The New Jersey Village for Epileptics.—The seventh annual report of the New Jersey State Village for Epileptics just issued, reports that the general health has been good and the inmates seem to be happy and contented. Epileptic seizures are reported by cases, giving the number in so many months, and a large decrease is shown in the year ending November 1, 1904, over the number of the preceding year, the monthly average being, for males and females, respectively, 307 and 245, as against 366 for each sex the previous year, this notwithstanding the increased number of patients. There are 93 inmates, six having been discharged and three having died during the year. New buildings are progressing, appropriations having been made by the last legislature, and the capacity of the village will soon be considerably increased. It was expected that by July 1, there would be room for 300 patients. Plans for original investigation of the malady and for more complete scientific treatment, are pending

All Should Live 100 Years.—Sir James C. Browne, the author of various works on mental and nervous diseases, in an address to the Public Health Congress in London, declared it was a good working hypothesis to regard the natural life of man as one

hundred years. He did not agree with Prof. Osler and others that the world's effective, vitalizing work was done between the ages of twenty-five and forty years. Much of the world's best work, he said, had been done by men over forty years of age. If the world were deprived of their work it would go back to the twilight of ages ago. Every child should be brought up impressed with the obligation of living to a hundred years, and should be taught to avoid irregularities in living which tend to prevent the attainment of this ambition. While it was certain that a century of health and vigor could be attained, it could only be reached by faithful obedience to the laws of health and simplicity and tranquility in living.

St. Louis Skin and Cancer Hospital.—On July 1 the St. Louis Skin and Cancer Hospital opened its doors for the reception of patients. This institution, situated on the southeast corner of Jefferson and Charles streets, consists of a completely equipped hospital of forty beds, and an outpatient or dispensary service. As the title indicates, only skin and cancerous diseases will be treated. The institution is founded upon the idea of research in cancer and allied types of malignant diseases. A pathologist, who will devote all of his time to the needs of the hospital, has been appointed, and he will conduct such scientific investigations as the opportunities of the hospital and clinic will permit. The medical staff of the institution will also, especially, direct their efforts to scientific endeavor. A training school for nurses, partaking of the character of a postgraduate school, has been established in connection with the hospital. Daily clinics for outpatients will be held. The institution is to be free of charge to all patients enjoying its benefits. Inoperable and incurable cancer cases, as well as the more hopeful ones, will be admitted to the hospital; the Society expects, in the near future, to have a home, situated somewhere in the suburbs of the city, for the former cases. The following medical staff has been appointed: Dr. G. Baumgarten, Dr. N. B. Carson, Dr. J. R. Clemens, Dr. M. F. Engman, Dr. A. E. Ewing, Dr. E. C. Burnett, Dr. W. E. Fischel, Dr. Frank R. Fry, Dr. George Gellhorn, Dr. John Green, Dr. John B. Keber, Dr. F. J. Lutz, Dr. Guthrie McConnell, Dr. H. G. Mudd, Dr. Greenfield Sluder, Dr. J. B. Shapleigh, Dr. Ellsworth Smith, Jr., Dr. Justin Steer, and Dr. Fred Taussig.

Boston's New Affliction.—About five years ago Malden, Medford and Everett were invaded by the brown-tailed moth; this insect, much more active and vigorous than its rival the gypsy moth, has spread in a remarkable fashion so that now very few of Boston's suburbs are free from its ravages. Along with the reports that many fine trees had been killed and the beauty of avenues destroyed, have come from time to time, chiefly from among those engaged in fighting this pest and the inhabiatnts in the affected districts, complaints of a very troublesome and painful rash, occurring usually on the exposed parts of the body at that time of the year when the moths were in the caterpillar stage. At first no cause could be assigned for this trouble, but now it is definitely known that it is these caterpillars who are to blame. Until recently very few of such cases have reached the city dispensaries and it was not until this year that many Boston physicians have come actively into contact with this condition. This season, however, the army of beautiful white moths invaded Boston itself, caterpillars have abounded on roads, sidewalks and trees, so that almost every one in the town has had an opportunity to learn from personal experience what the brown-tailed moth rash is like. The caterpillars hatch out in the early spring and again late in August; they are plentifully provided with stiff, many-pronged hairs which are apparently but loosely attached and, set free by the slightest force, are thrown into the air. These fall on the arms, face and neck of unfortunate individuals and also on wash hung out to dry, so that the rash may be found on any part of the body. The rash itself is usually localized in the form of many discrete papules, intensely painful and itching, lasting from one to two weeks. Most cases require no treatment beyond the simplest of home remedies, but some are reported from Newton where the eruption was general, the eyes closed, and hospital treatment necessary. The complaint is a very real one and, although the entire subject has been the source of many jokes, to the one afflicted it is no laughing matter.

OBITUARY.

Dr. Curtis Harvey Bill, of Bridgeport, Conn, aged seventy years, a leading physician of Fairfield county, died July 24, from the effects of an abdominal operation performed the preceding Tuesday at St. Luke's Hospital, New York. He was a native of Tennessee, but had resided in Connecticut since the Civil War, in which he served as a surgeon.

Dr. H. J. Schiff, of 117 East Seventy-ninth Street, New York, dropped dead on the steamboat pier at Alexandria Bay on July 24. He was on his way to Ogdensburg, to attend the State convention of the Knights of Pythias.

Dr. Joseph Burr Bennett, who was one of the oldest homeopathic physicians in Brooklyn, died on Sunday at his home, 108 Columbia Heights. He was born at Saugatuck, Conn., eighty-nine years ago, and came of Colonial stock. He began practising as a physician in Brooklyn sixty years ago. For the past twenty years he had devoted himself to the care of his property. Dr. Bennett leaves six children.

Dr. Anna Frances Donoghue died on the morning of July 20, at her apartments in the Grenoble Hotel. She had suffered from heart disease for some time, and had predicted that death would come, as it did, while she slept. Dr. Donoghue was born in Newburgh, N. Y., in 1873. She was graduated from the Albany Normal School in 1888, and shortly afterward entered the New York Medical College for Women, from which she was graduated in 1894. Dr. Donoghue was a member of the Eclectic, Rainy Day and Minerva clubs. She is survived by two brothers, Joe Donoghue, and James Donoghue, a detective of the West Forty-seventh Street police station.

Dr. Benjamin Edge died at his home in Jersey City, July 25. He was born May 17, 1851, and was sent to London, where he received his early education at Clapham College. Returning, upon the death of his father, to this country, he completed his medical studies at Bellevue Hospital, receiving his degree in 1878. In 1884 Governor Abbett appointed him a member of the State Council of Charities and Corrections. In 1901 Governor Voorhees made him a member of the State Reformatory Commission. His grandfather, Isaac Edge, came from England, and built the fourth house erected in Jersey City.

CORRESPONDENCE.

"PULSE IN VERBAL RHYTHM."

Editor of the MEDICAL NEWS:

DEAR SIR: In the current number of *Poet Lore* there is an article on "Pulse in Verbal Rhythm," which contains a suggestion calculated to be of great interest to physicians.

The article is by Mme. Mary Hallock, the pianist, and deals with the clock time rates which can uphold the feeling and not distort the form of poetry. It is demonstrated that the scope of speed covered is coincident with that of the pulse considered in its cycle of general and individual variation.

The physiologieal explanation suggested is that the mechanical jutting out of the arterial walls with every heart-beat jostles the network of nerves which surround them to urging a compensating action. This is the more readily to be believed when one keeps in mind the fact that these time rates are palpably not necessary, but are born of habit bred from unremitting suggestion. The mechanical energy refered to is that which grows out of the check given to the arterial flow by the capillary system.

All physiologists know the stimulus is no slight one. The same writer has elsewhere hinted that it may have indirectly helped to develop many of the larger one dimensional rhythms within the body—the regular movements of the viscera, for instance.

Another interesting point is made that the form of the heart-beat, the "lub dup" of the expansion and contraction, is precisely in point of time the "short long" which constitutes two-thirds of all English poetic rhythms, as well as much zoological rhythm besides. A guinea-hen's cackle, for instance, has the honor of being couched in as perfect iambics as Shakespeare's pentameters.

The parallelisms drawn throughout the article open up a wide field for speculation.

Very respectfully yours,

JOS. R. BAIRD.

1424 Master Street, Philadelphia, Pa.

SOCIETY PROCEEDINGS.

THE AMERICAN MEDICAL ASSOCIATION.

Fifty-sixth Annual Meeting, held at Portland, Oregon, July 11, 12, 13 and 14, 1905.

SECTION ON SURGERY AND ANATOMY.

SECOND DAY—JULY 12TH.

(Continued from Page 189.)

Penetrating Wounds of the Abdomen.—Dr. R. Winslow, of Baltimore, Md., dealt particularly with military wounds, and stated that stab wounds are not as serious as gunshot wounds. He gave some of his personal experiences in civil practice with the results of treatment.

Dr. Cooper, of San Francisco, spoke of his experience with abdominal wounds as observed in the South African war, and called attention to the prognostic importance of an empty stomach at the time of injury.

Dr. McRae, of Atlanta, Ga., described a method of treating gunshot wounds of the abdomen, and called attention to the danger in cases where the intestine was separated from the mesentery. He was not in favor of using gallons of water to flush out the abdominal cavity after injury.

Dr. Winslow, in closing, believed that some cases should be drained, although where there had been but little contamination he did not think so.

Abdominal Crisis Caused by Meckel's Diverticulum.—Dr. Miles F. Porter, of Ft. Wayne, Ind., said that within a period of a few months there had occurred in his practice four cases of Meckel's diverticulum. In one the diverticulum caused no trouble. In the other three it was the occasion for the operation. This paper was based upon this experience, coupled with a study of reported cases (149), together with 35 cases hitherto unreported. The chief object of the paper was to add to the practical aspect of the subject. The author claimed that: Meckel's diverticulum is a fetal remnant which should but does not always disappear by a process of involution. It is present in from one to two per cent. of all individuals. It is the cause of intestinal obstruction in six per cent. of all cases. Meckel's diverticulum, when present, is a greater menace to life than is the appendix vermiformis. Of the cases tabulated, it caused obstruction by band in 101 cases, volvulus in eight cases, intussusception in twenty cases. Diverticulitis was the cause of crisis in seventeen cases, prolapse of the bowel in two cases, typhoid perforation in five cases, traumatic perforation in one and tuberculous ulceration in two cases. The diverticulum was the cause of trouble in hernia in twenty cases. It was most frequently found in umbilical hernia. One case of stricture of the gut by superinvolution of Meckel's diverticulum is reported by Maylard. Duplication of the intestine may be caused by Meckel's diverticulum. Cysts are rare, but do occur, and may produce gangrene of the bowel by traction. Illustrations were shown showing some of the numerous ways in which diverticula cause trouble. Crisis caused by Meckel's diverticulum is most apt to manifest itself as bowel obstruction or peritonitis. In 118 cases obstruction was complete and in seven incomplete. In seventeen cases there had been previous attacks of incomplete obstruction. In one case (McArthur's) the appendix vermiformis was gangrenous, because of strangulation due to Meckel's diverticulum acting as a band. Diverticulitis is likely to be diagnosticated as appendicitis. Trauma is probably a frequent cause of crisis, due to Meckel's diverticulum. Symptoms are not distinctive, and a correct diagnosis is hardly possible, nor is it necessary. A working diagnosis can be, and should be, made early. Mortality in these cases is extremely high, and is due largely to delay in operation. A Meckel's diverticulum, when met with, should be removed, whether it is causing trouble or not. It should be excised, rather than inverted, using a purse-string or Lembert suture to close the opening, owing to its size and relation to the gut. The reports of 184 cases were appended to the paper.

Dr. Jepson, of Iowa, expressed surprise that the condition was not found more frequently, and although he has been examining for the past two years every operative case he has not discovered any.

Dr. Goldspohn, of Chicago, spoke of the author's reference to the predominance of the condition on the left side and he believed it could probably be explained by the difference in the circulation of the two sides, the same as do the gynecologists.

Phlebitis, Following Abdominal and Pelvic Operations.—Dr. A. H. Cordier, of Kansas City, Mo., stated in this paper that inflammation of the saphenous or femoral vein following abdominal and pelvic operations, while of rare occurrence, is met with sufficiently often to be of much interest to surgeons en-

gaged in this class of surgery. Anatomical peculiarities of the left common, external iliac and femoral veins have been advanced as a cause of the left side so frequently becoming the seat of a phlebitis. That the left saphenous vein is the vessel most frequently involved is true, but why this vein should be the one most often affected has not been thoroughly settled. Numerous theories have been advanced, but none of them, to me, are tenable. Phlebitis of these veins follows operations performed in other parts of the body than the abdomen, as the following cases may incidentally illustrate: That the left femoral and saphenous veins are chosen fields for bacterial colonization no one will doubt after analyzing the location of the phlebitis in a large series of cases. Dr. Cordier is firmly of the opinion that these germs reach these selected points through the blood, after traversing the heart, lungs and arteries, and thus reach the walls of the veins, and that the thrombus, when one forms, is formed as a secondary process. If the walls of the vein receive the infection from the venous blood, thrombi would form earlier in the process of the inflammation, and the disease would be of more serious character in as far as permanent injury to veins is concerned. If the disease of the vein proper is secondary to the thrombus formation, as some authorities claim, there must be some anatomical arrangement favorable to the development of a thrombus in the left femoral and internal saphenous that does not exist in other veins of the body. He does not believe that the cause is to be found in the general circulation alone, the walls of the vein are primarily attacked, hence the agent producing the phlebitis must reach the vessel's walls either through arteries, lymphatics, or, if in the venous circulation, there must exist in this left vein a want of resistance to bacterial invasion that is not found in the right leg.

Isolated spots of infection of the affected vein are frequently noticed, those farthest away from the body appearing last in most instances. From this fact multiple thrombi may form in the vessel. Most of the French clinicians believe that the process is primarily an infection of the venous walls. Maurice Richardson believes that it is especially liable to follow operations in the pelvis of anemic patients, and that the disease is aseptic in its origin and in its course. In the rare instances in which the disease begins in the right leg it almost invariably will attack the left also. It was maintained for a long time that the infection in phlebitis was transported by the white corpuscles to a thrombus already formed. The infection of a femoral vein following an abdominal operation does not appear to be one of extension by continuity from the pelvic structures. In reviewing the cases he found that about 30 per cent. followed operations for the removal of the uterus for fibroids.

Pelvic Operations.—In all hysterectomies (abdominal) many ligatures are used and much tissue is compressed (later becomes necrotic), a septic cavity (uterine) is opened, and no drainage put in. The conditions left in pelvis are favorable for the development of a mild type of infection (local and constitutional) from site of "tied off" tissues. This would naturally occur about ten days or two weeks later. In vaginal operations (rarely followed by a phlebitis) the same structures are constricted, but here we get good drainage and Nature is not compelled to take care of the infected and necrotic tissues by absorption. For instance: Take two patients who are in identically the same general run-down condition; in one nature is loaded down with disposition of pedicle tissue and mild infection; in the other drainage relieves her of this added responsibility. In pyosalpinx and other suppurative processes in the pelvis an immunity has been established in the patient, so that at the time of operation she is not likely to become generally septic, many of these operations being followed by drainage. In most of my cases the first symptoms of this complication have developed in the second or third week following the operation, regardless of the character of the case operated on. If there has been any difference at all, the phlebitis has followed operations for the removal of seemingly aseptic growths, as uterine fibroids, cirrhotic ovaries and internal operations for appendicitis. It would look as though the infection was either introduced through a defective aseptic technic or was due to the absorption of the pedicle at site of the operation. To the latter theory I am disposed to lean, but this does not explain why the left vein should be most frequently involved, even though the operation was performed on the right side, as in the case in appendicitis, common-duct operations, and right oophorectomy. Some of the postoperative pneumonias are undoubtedly due to infected emboli carried from inflamed and thrombotic veins. A more fatal condition may be brought about by an emboli in the brain from the same source. Massage should not be used in the early history of the disease, for fear of dislodging fragments of a thrombus, and thus cause embolic, pulmonary or cardiac symptoms of an alarming character, or even sudden death. A patient suffering from a phlebitis should avoid all undue or violent exertion, as the detachment of a fragment of a thrombus may result in a fatal embolic injury of a cardiac or respiratory center in floor of a fourth ventricle or a multiple infection of lung or other remote organs. The acute symptoms of a phlebitis usually disappear within a few weeks under proper management, while the late history is one of a tedious recovery and the use of the elastic stocking extending over a period of months, and sometimes years. Elevation of the affected limb and bandaging it loosely and keeping it moist with witch-hazel or other cooling lotions constitutes the local treatment for the acute phlebitis. The administration of cathartics and tonics completes the treatment of ordinary cases. Later massage and the use of an elastic stocking may be necessary.

Anaerobic Cellulitis.—Dr. J. Clark Stewart, of Minneapolis, Minn., stated that, clinically, anaerobic infections have interested the medical profession since early times, as shown by the older writings. Pasteur, in 1887, made the first step toward scientific study. William Welch, in 1891, first isolated the true cause of gas infection, the *Bacillus ærogenes capsulatus*. Since this time 61 cases of surgical gas infection have been reported, with two cases being personal, and six from literature not previously collected. Personal cases, one following extravasation of urine in a patient aged seventy-one years, which recovered after free incisions, irrigation with peroxide hydrogen and wet dressings. A second case of gunshot wound died the fourth day of acute gas infection. Both cases were positively diagnosed bacteriologically. An analysis of the causation of the observed cases shows that the most prominent causes were compound fractures and bullet wounds. In all but seven of the 61 cases the disease was preceded by traumatism or surgery. The

general mortality is a little over 55 per cent., and this holds true of the mortality after compound fractures and bullet wounds. Welch has shown that the gas bacillus is very widely distributed in nature, hence gas infections are likely to be not uncommon. Gas infection from other germs is extremely improbable, and such reported cases should be scrutinized carefully.

Symptomatology.—Rational symptoms vary quite widely in the different cases. The one constant diagnostic symptom is the presence of the gas bacillus in the wound secretions, usually accompanied by emphysema of the tissues surrounding the wound of entry. Smear preparations from the wound are the most important means of early diagnosis.

Treatment.—All suspected wounds should be thoroughly cleansed, best by carbolic acid and alcohol. After diagnosis the infected area should be laid wide open by multiple incisions, and treated by continuous baths, or by irrigation and wet dressings. The use of peroxide hydrogen is theoretically indicated, and seemed of great value in one case reported. His conclusions were as follows: (1) Gas bacillus infection, while not a common disease, demands the attention of all surgeons, because, while regularly fatal when untreated, its early diagnosis is easy, and its successful treatment requires only the prompt and thorough application of well established surgical principles. (2) Either removal of entire disease by amputation or thorough exposure of its site to air and drainage seem the essentials to be attained. (3) Free incisions, the continuous bath or irrigation and wet dressings have afforded the best results, and, theoretically, hydrogen peroxide is indicated

THIRD DAY—JULY 13TH.

Extrophy of the Bladder Successfully Treated by Peter's Method.—Dr. Harry M. Sherman, of San Francisco, discussed Peter's extraperitoneal method. He compared it with Maydl's intraperitoneal method, particularly with reference to the ease of technic and the more brilliant results of the former. He said that there was urgent need for a specially constructed ureteral catheter during the operation, and pointed out a number of the dangers resulting from its use following the operation. He claimed that primary closure was preferable, although secondary closure might prove satisfactory. In conclusion he reported at length the history of a patient upon whom he had operated by this method.

Dr. E. A. Wells, of Hartford, spoke of two operations performed by Dr. Hartley, of New York, one for exstrophy of the bladder and the other for chronic tuberculous cystitis. Both operations were successful. He advised great care in the use of the ureteral catheter, and advised a technic that would permit of the doing of an operation which would preclude the opening of the peritoneal cavity.

Dr. L. L. McArthur, of Chicago, spoke of certain experiments made on lower animals by Dr. Peterson, of Ann Arbor, and Dr. Martin, of Chicago, in which they tried to implant the ureter into the rectal wall in such a manner that fecal infection could not result. He said that as a result of their studies it had developed that the fecal masses tended to empty the ureter by a suction or milking action, and thus the danger of an ascending pyelitis was entirely avoided.

Dr. Sherman, in closing the discussion, said that Dr. Hartley's method was nothing more than the regular Maydl operation He spoke of a number of experiments made by Dr. Tait and himself on the transplantation of both ureters in dogs. All of the dogs died from peritonitis, and the experimentation was abandoned. The only instance in which infection from below has occurred following operation done by Peter's method was in one patient in whom Peter kept the catheter a long time. Dr. Sherman said that the operation was simple and valuable.

Tuberculosis of the Kidney.—Dr. J. Garland Sherrill, of Louisville, Ky., considered this subject worthy of more attention than has been accorded it. Kroenlein's classification of solitary and combined tuberculosis was followed. The bacillus may gain access to the kidney through the circulation, by ascending infection from the bladder prostate, etc., or an invasion may occur from an intestinal or peritoneal tuberculosis. Cases are recorded where an empyema or a Pott's disease have caused the kidney involvement. The fact must not be overlooked that genital and renal tuberculosis may occur simultaneously and independently. Any age is susceptible to this form of the disease, but it is seen most often in the young. Statistics are confusing upon the point of sex, but it would seem that there is little difference in the frequequency with which either sex is attacked. Both kidneys are affected in two-thirds of the cases where a general tuberculosis co-exists; where the lesion is limited to the kidneys in the larger number only one kidney is affected. The kidney is diseased prior to the bladder in the large majority of cases, yet the latter organ and the ureter will in time become infected. The lesion in the kidney may be single or multiple. Tubercle as seen here does not differ from that tissue in any part of the body. It passes through the same stages and extends downward in circulatory infection and upward when the infection is from the bladder. The process is slow and some years may elapse before the secreting structure is entirely destroyed. The miliary form of the affection does not properly belong to this paper, for it is not amenable to surgical treatment. Among the complications and sequelæ mentioned in connection with this affection are hydronephrosis, fistulæ connected with the stomach or other portion of the alimentary tract or with the skin. Tuberculosis of other organs is a frequent condition.

Symptoms.—The onset of the disease is insidious, an exception being the sudden onset of pain in a previously healthy patient, probably due to the obstruction of the ureter by blood clots or cheesy plugs. Pain in the back is present, varying from soreness to a severe backache, not much influenced by motion, and radiating down the side towards the bladder. Frequent urination is one of the earliest and most prominent symptoms. This, too, in the absence of bladder involvement. The urine is acid, and contains pus, blood, albumin and casts, the latter infrequently, and tubercule bacilli. Hematuria is often one of the early symptoms of the disease, and in most cases blood can be found in the urine at some time. The blood is usually equally diffused throughout the urine, but at times the hemorrhage is severe and persistent.

The size of the kidney varies, sometimes being normal and again greatly increased in size. The presence of perirenal inflammation is likely to give the impression of a tumor. The presence of bacilli in the urine is an important but not positive sign of renal tuberculosis, as Kahlden has shown their presence in the urine without pathological changes in

the urinary tract. Bacilli, with blood and pus in the urine, in the absence of a diseased bladder or prostate, would seem to be pathognomonic. On the other hand the absence of the organisms from the urine is not a proof that the kidney is sound. Hunner advises repeated daily examinations for bacteria rather than a number of examinations upon one day, and claims that the differential stain should always be used. Tubercle bacilli were found in 15 of 22 of his cases in which a note was made. Casper found them in 80 per cent. of his cases, and confirmed the nature of the germ by cultures, and with more extended time by inoculation of guinea-pigs. Kroenlein found bacilli in 17 of 31 cases. Dr. Tilden Brown claims that cultures should be made from the urine separated by ureteral catheter, and also that inoculations are of great value. The tuberculin test seems to the writer to be of value only to establish the fact that the patient has a tuberculous lesion, the location of the focus to be determined by other means. The general symptoms are those of tuberculosis anywhere; evening rise of temperature, loss of flesh, anorexia, pallor of the skin, night sweats and perhaps edema of the feet. Later, symptoms of hectic may be present.

Diagnosis.—The diagnosis is to be made by the history, general appearance of the patient, pain less severe than that of stone, and coming on slowly as a rule, dysuria, polyuria, hematuria, pyuria in an acid urine, and the presence of albumin. The demonstration of the bacilli with the other symptoms mentioned will be conclusive. The question of the advisability of catheterizing the ureter in these cases is one worthy of some consideration. There can be no doubt of its value in making a positive diagnosis, but some objections can be offered to catheterization of a healthy ureter in the presence of disease of the other kidney, the greatest of these being the danger of infecting the healthy side. That such infection is possible we do not deny, but that it occurs with any degree of frequency we are inclined to doubt. The experiments of Albarran seem to show that disease of the ureter is only produced by local infection when there is an obstruction below the infection. Hunner, in speaking of Case II of his series, says that he thinks it fair to question whether the infection was not carried up the left ureter by the catheter eight years previously. There is certainly no sufficient proof in support of this conclusion and it would seem more reasonable to attribute the infection to the same source as the one which caused the disease of the right kidney. Albarran advises a catheter in the diseased ureter as large as it will hold, thus obstructing it, and the collection of the urine from the other kidney as it reaches the bladder. When the bladder is not extensively diseased the writer considers that catheterization of the ureter is justifiable and a means of diagnosis which is without equal. This procedure offers the most satisfactory method of determining the presence of another kidney, its functional efficiency, and the presence or absence of disease in its structure. Cryoscopy of the segregated urine will prove valuable in determining the functional power of each organ. Wright and Kilmer have proposed a new method of determining the secretory power of the kidney based upon the point at which the urine will allow complete hemolysis of a standard suspension of red blood corpuscles.

Prognosis.—The prognosis is usually unfavorable, except in circumscribed disease of one kidney, which is promptly treated by operation. The gravity is increased when both kidneys are involved, and when it occurs in the course of a general tuberculosis. It is also increased when the ureter and bladder are extensively diseased, and when other foci of the disease are present in the body. While usually progressing to an unfavorable termination, the course is often slow, and years may elapse before the fatal issue. Recovery without operation is possible, but of infrequent occurrence. E. J. Ill reports several cases of apparent recovery, and Morris says that "certain well marked cases of renal tuberculosis have been temporarily or permanently benefited, and some actually cured, by a change of residence, a suitable climate and under suitable hygienic and dietetic régime." Cases are recorded where a patient lived for some years with a diseased kidney after one had been removed. The prognosis is much improved by the early partial or complete removal of a single kidney subject to this disease. The mortality of nephrectomy was given by Gross in 1885 as 40 per cent., and by Vigneron in 1893 as 20.80 per cent., operative mortality, and 38.40 per cent., general mortality Israel places it at 18 per cent. in 1896, and Tilden Brown in 1898 at 7 per cent. Kroenlein gives his operative mortality as 5.88 per cent., and the general mortality as 29.40 per cent. The number of permanent cures is greater after complete nephrectomy, or nephro-ureterectomy, than after nephrotomy, or any other plan of treatment. Morris reports seven cases of partial nephrectomy, three of which were later subjected to total removal, while four were known to be well at considerable periods after operation. He records four nephro-ureterectomies with three recoveries and one death from hemoptysis and pulmonary tuberculosis five weeks later.

Hunner reports thirteen complete and partial operations done by Dr. Howard A. Kelly and his associates without mortality, a very favorable result.

Treatment.—We are firmly convinced that this is essentially a surgical disease when recognized while it is solitary, and only one kidney is affected, also that by conservative operation much good may result even in the later stages of the affection. In cases where operation is not accepted, or where it is deemed unwise, much good may be obtained from the measures usually employed in the treatment of tuberculosis in other parts of the organism; as good food, fresh air, suitable climate, creosote, codliver oil and some of the various tissue builders. In addition to these measures the removal of the primary focus of infection is advisable when feasible.

Dr. O. C. Smith, of Hartford, said that only after prolonged search the tubercle bacillus could be found. He collected a twenty-four-hour specimen. This he searches several times, and if the germ be not found he centrifugalizes and inoculates a guinea-pig. Cryoscopy and skiagraphy are valuable aids in diagnosis, and he commended the improved technic employed by Dr. L. G. Cole, of New York.

Dr. Maurice H. Richardson, of Boston, said that the first question to be decided in these cases is whether both kidneys were affected. A still more important problem in his opinion was whether, in the event of a proposed operation on one kidney there was a second kidney, and if so if it were eliminating properly. The only way to treat the condition under consideration, he thought, provided the integrity of the other kidney, was by total ex-

tirpation. After the removal of a tuberculous kidney, if sinuses exist that are dependent upon the tuberculous focus, he feels that the chances of a permanent cure are not worth much. In conclusion in comparison of this disease with malignant trouble he urged similar radical measures for its treatment.

Dr. Huntingdon, of San Francisco, agreed in recommending the total removal of the kidney in these cases, and referred to three patients on whom the operation had been done with excellent results. He thought that surgeons could be more optimistic in the future as regards the results of extirpation in the early stages.

Dr. C. W. Sharples, of Seattle, spoke of the importance of hemorrhage in tuberculous kidney. It might be associated, he said, with irritation of the bladder and cause painful urination, although not necessarily so. He detailed the history of a patient on whom he operated for tuberculous kidney. He died from pulmonary hemorrhage eighteen hours after operation, although evidences of any tuberculous deposit in the chest had been sought for and had not been found.

Dr. Munzen, of Wisconsin, reported having observed Dr. Mayo inject twenty drops of pure carbolic acid recently into the ureter in a case of tuberculosis of the kidney. This was done to obviate the necessity of removing the ureter.

Dr. Jacob Frank, of Chicago, spoke of the value of cystoscopy in examination of the bladder in cases of tuberculous kidney. His experience had shown him that the ureter was generally enlarged in the descending type and not the ascending type of the disease. He operates usually in two stages, and reported having opened the pleura accidentally while operating on one patient, with resulting death. It was possible, in his opinion, that death in this instance was due to the failure of the kidneys to functionate and to the presence of a stone. He also reported the history of a patient upon whom he operated sixteen years ago. He has remained comparatively well ever since, although the bladder symptoms have never subsided. He said that it is wiser if possible to make a diagnosis before the bladder had become accustomed to emptying itself so often. The bladder symptoms are then more likely to subside after operation on the kidney.

Dr. Sherrill, in closing the discussion, said that whereas it was a difficult matter to pass a catheter through an infected bladder into a sound ureter, yet he believed it could be done with safety to the patient. He thought that Dr. Mayo's method of injecting carbolic acid into the ureter provided the ureter was not very much affected was advisable at times. Dysuria and polyuria are often very early signs of much importance. Prompt search for the tubercle bacillus or for other bacteria, preferably employing many specimens, should be instituted at the earliest moment.

Treatment of Congenital Dislocation of Hip, with Report of Cases.—Dr. Park Weed Willis, of Seattle, described in full his method of reduction by gentle repeated manipulation. He said that he resorted to open incision only when, after a fair trial, manipulation had failed. He changed the casts on the affected limb with comparative frequency. The result in one patient with double dislocation was anatomically perfect. In another he was unable to maintain the reduction. In this case on making an open incision the capsule was found to be adherent across a very shallow acetabulum; reduction was performed, but the limb again getting out of position reduction became necessary. In this patient an anatomically perfect result was secured, although there was some stiffness and a slight degree of abduction. He further reported the history of a case of double dislocation with poorly developed acetabular cavities. His result in this case was anatomically perfect, while in another similar one he was able to secure anterior transposition. In conclusion he gave detailed histories of two adult patients with single and double dislocation, respectively, in which he secured a good result with comparatively slight disability.

Dr. Hunkin, of San Francisco, in discussion, said that the hip should be replaced in every case by the quickest and easiest manner possible. There is no question, he thought, about the best surgical proceeding being an open incision down to the capsule, with division of the capsule and putting the head of the bone in the acetabulum, provided there was one. The great difficulty was to keep it there. The most essential part of the operation, he believed, was wearing a splint from six to ten months, and he thought that a splint which opened at the side might be worn every night, although it had to be changed during the day.

Dr. DeForest Willard, of Philadelphia, after referring to the newspaper hysteria on this subject at the time of the visit of Dr. Lorenz, spoke against Lorenz's plan of treating these cases. He was heartily in favor of Dr. Willis' procedure of gentle manipulation provided it could be performed successfully. This he seemed inclined to doubt. He did not believe that a slight improvement in a child's walking, and particularly of men, was important compared with their beginning better prepared to do their work. He reported the results of three operations performed on three of his patients last year by Dr. Hoffa, in none of whom was a very satisfactory result obtained. In commenting on the prognosis he advised great caution, and compared the acetabulum in many cases to a tea saucer, instead of as it should be, a tea cup.

Dr. Harry M. Sherman, of San Francisco, believed that Dr. Willis had accomplished a great step in advance in the treatment of these conditions if he was able to secure and maintain the reduction by the methods he advocated. He objected on general principles to the forced manipulation of Lorenz or the bloody operation of Hoffa, and spoke in favor of the open incision.

Dr. Parker, of Portland, reported the history of a woman aged sixty years and weighing 200 pounds, who had had congenital dislocation without any other discomfort than a limp. Her oldest daughter had a similar defect on the same side; her granddaughter was perfectly sound.

Dr. James E. Moore, of Minneapolis, said that the term "bloodless operation," was a misnomer, and referred to it as the most unsurgical procedure with which he was acquainted. He believed the Lorenz manipulations often left the patients in a worse condition than they were before, and said that so far as he was concerned he would advocate open incision in the future.

Dr. S. C. Baldwin, of Salt Lake City, thought the Lorenz method a very bloody one, and did not approve of the Hoffa operation.

Dr. A. J. Ochsner, of Chicago, spoke in favor of

the Lorenz methods and reported that he had seen thirty patients operated on with good results. He believed that it was a perfectly safe and justifiable procedure. The cases, however, had to be properly selected, and the operator should understand how to do his work thoroughly. Lorenz's methods were not for the unskilled man.

Dr. Willis, in closing said that he considered the open incision an unsurgical procedure. It produced, he thought, stiff joints and crippled patients. He believed that sufficient micro-organisms enter a small opening over one hip to infect and ruin both hip joints.

Ununited Fractures in Cases of Delayed Union.—Dr. Casper W. Sharples, of Seattle, Wash., dwelt at some length on the symptoms, pathology, diagnosis, prognosis and treatment of this condition. He also gave the details of a number of cases occurring in his practice with the results of treatment in each.

Dr. Martin, of New Orleans, said that improper reduction or the interposition of tissues was responsible for many cases of ununited fracture. He advised making sure that crepitis could be elicited after reduction, this being, he thought, a sure sign of bony apposition. He was opposed to a cutting operation in these cases, and said that wire suturing was not sufficient to hold the bones. He advocated the use of a staple made of piano wire. An open drainage tube, he thought, was advisable in all of these operations.

Dr. Huntingdon, of San Francisco, believed that in almost every case delayed union was due to faulty position. The X-ray should make it possible to secure proper apposition, but he did not consider that bony crepitus as a sign was enough to decide that this result had been obtained. Fractures of the shaft of the femur are particularly liable to become misplaced owing to the large size and the tension exerted by the muscles.

Dr. Harry M. Sherman, of San Francisco, thought that injuries to the arteries was the principal cause of delayed union, or non-union, in many cases. He said that he had found that the upper fragment heals alone, and the lower fragment rarely does. Crepitus, he thought, was a satisfactory sign that the bones were in apposition. The use of the X-ray in addition was highly advisable, but spoke strongly against the X-ray being used for diagnostic purposes to the exclusion of the other methods.

Dr. Hunkin, of San Francisco, believed that the failure to secure immobility at the seat of injury was the chief factor in these misfortunes, and said that the members of the profession were afraid to put the splint on tight enough for fear of swelling, and of developing compression symptoms. He said that swelling would not take place, no matter how tight the splint, if the pressure was evenly applied.

Dr. Sharples reported, in concluding the discussion, that he had good results from the use of silver wire. Saving the periosteum was the most important factor in securing good union. When fibrous tissue was found at the ends of the bones it was to be interpreted as an attempt to heal the parts. He thought that the tearing off of the nutrient artery was an important factor, and was sure that he had seen cases of ununited fracture due entirely to that condition.

Site of Origin of Gall-Stones.—Dr. L. L. McArthur, of Chicago, reported an interesting case of gall-stones and showed the liver with the stones *in situ*. He made the observation that for several days after he had operated for all the stones in sight that they continued to come out of the wound through a drainage tube.

Dr. Maurice H. Richardson, of Boston, said that a surgeon need not reproach himself because stones came away subsequent to his operation. Observations were numerous illustrating the formation of stones in the liver instead of in the gall-bladder. In order to avoid this complication he recommended the employment of an incision large enough to admit the surgeon's hand.

Dr. Robert F. Weir, of New York, spoke of his method of securing a sufficiently large incision to enable one to thoroughly explore the liver.

Fractures of the Leg, Their Diagnosis and Treatment, With Report of Cases and Demonstration of X-Ray Pictures.—Dr. C. O. Thienhaus, of Milwaukee, presented a large number of pictures illustrating various varieties of fractures of the leg and of the foot, with his method of treatment and the results obtained.

Dr. Thienhaus said, in closing the discussion, that if a subastragaloid dislocation could not be reduced immediately the open operation should be performed, and if that was not successful the entire astragaloid must be removed.

The Section elected Dr. Robert F. Weir, of New York, Chairman, and Dr. A. C. MacLaren, of St. Paul, as Secretary; Dr. A. F. Jones, of Omaha, was elected as the delegate from the Section to the House of Delegates, and the thanks of the Section to the Rector of the First Presbyterian Church for its use for the meeting and to the retiring chairman and secretary for the excellent program were carried.

SECTION ON PRACTICE OF MEDICINE

SECOND DAY—JULY 12TH—*Continued.*

(Continued from Page 185.)

Treatment of Nephritis.—Dr. Frederick C. Shattuck, of Boston, said that drugs are absolutely powerless to affect the kidneys. Hence the necessity for treatment without medicine. The kidney in nephritis needs rest more than anything else, but absolute rest is impossible because the rest of the system would not stand it. There must, however, be just as little kidney function demanded as is possible. This limitation of the kidney function must be kept up for as long a time as is possible without injury to the individual. It is rather easy to make mistakes in the application of this rule, and, indeed, for twenty-five years almost universal acceptance of a rigid milk diet for nephritis was a mistake. The other mistaken notion was the encouragement of too much water. Water was considered to be the best diuretic, and caused a flushing out of the system. Unfortunately, however, the water did not always find its way out through the kidney, and consequently there was an increase of blood pressure which made conditions worse than they were before.

Acute Nephritis and Its Treatment.—The most important indication in acute nephritis is to enable the patient to tide over the crisis when kidney elimination is at its lowest. This can best be accomplished in previously healthy persons by absolute starvation for several days. When the kidney symptoms begin to remit, a quart of milk in the day may be allowed, and cereals and fats allowed in moderate amounts

to keep up the nutrition. There are some curious contradictions as to what is allowed patients. Some authorities absolutely prohibit alcohol, yet encourage the use of koumiss and other preparations of this kind, which contain from five to six per cent. of alcohol. The diet should be increased as the patient grows better, but animal broths should be allowed last of all, because they contain very little nutritious material and a large amount of extractives, which are decidedly irritant for the kidneys.

Acute Exacerbations of Chronic Nephritis.—These must be treated just the same as acute nephritis. Usually, however, owing to the presence of chronic nephritis for some time, the patient is not in as good condition, and consequently the starvation cannot be so absolute nor so prolonged. In all cases, however, there must be a great limitation of diet, and this must be kept up as long as possible consistently with the maintenance of the patient's strength.

Chronic Nephritis with and without Dropsy.—The studies in the pathology of the kidney have been many, yet no classification of kidney disease is entirely satisfactory, hence the necessity for using the clinical distinction in reference to dropsy. Where dropsy is present the heart is usually insufficient, and less water must be given than under other circumstances. Diuretin is an excellent aid in the diagnosis of the origin of dropsy in these cases, and, in Dr. Shattuck's experience, if taken in doses of fifteen to twenty grains three times a day, it never fails to act favorably on cardiac origin, while it has no effect on extra cardiac dropsy.

Individualization of Treatment.—Dr. Shattuck said that the most important thing in the treatment of nephritis is careful individualization. In theory a treatment may be very good, but works very bad in practice in a particular case. "What doth it profit a man if he gains good kidneys and loses his life?" Diet lists in general find their best resting place in the fire. Other organs must always be considered as well as the kidneys. The doctor must be his own prescriber of foods as well as of drugs. Common sense must be his most important guide. Von Noorden has shown that it is an error to give too much water, even in nephritis, where there is no dropsy; it leads to a strain of the left ventricle. In all cases the amount of fluid ingested must be regulated by the amount which is excreted in the urine. As soon as there is any tendency to accumulate, then the fluid taken must be lessened.

Varied Diet.—Dr. Shattuck has for some twelve years rather favored the idea of a varied diet than of too rigid a dietetic regulation. The only thing that can be said in favor of the limitation of red meat is that it limits the total amount of meat taken. After a time, if a man can take only the breast of chicken, this palls on him so much that he eats very little indeed. Dr. Shattuck allows any colored meat once a day, according to the taste of a patient, and fish and eggs at the other two meals. More kidney patients suffer from insufficient food than from too much food, once their nephritis has been discovered and their attention drawn to it. Spices should be forbidden, but all green vegetables and fresh fruits are good in season. The trouble with the treatment of kidney disease is that there has been too much dependence on half-truths. Truth is often said to be a simple matter, but, as Tom Reed said, "Half-truths are simple, but whole truths are the most complex things on God's earth."

Conclusions.—The treatment of nephritis is not by drugs, but by diet. Drugs may be used for symptoms or for the heart, but not for the kidneys. The kidneys must be spared all unnecessary work. Acute nephritis and acute exacerbations, or chronic nephritis, must be treated by starvation to the extent of a patient's strength, and the quantity of food is more important than the quality of the food, and a little alcohol can sometimes be used to decided advantage. A varied diet is better than a rigid dietary, and the amount of albumin is no guide to the diet.

Recuperative Power of Kidney.—Dr. Witherspoon, of Nashville, Tenn., said, in opening the discussion, that the most promising feature of kidney disease is the recuperative power of the kidney. The general teaching is that there is little recuperative power, yet desperate cases get better. Hence the encouragement for treatment. Much of nephritis is of the infectious and circulatory type rather than of degenerative origin. Undoubtedly the clinical condition of the patient is more important than the results of the urinary examination. There is a rush to make the diagnosis of Bright's disease not justified by our present knowledge Care is needed and many observations. In treatment the danger signals must be watched. Drugs are disappointing, but often helpful in emergencies. A varied diet keeps up the resistive power, and if the patient is not scared to death the outlook is much better than has usually been considered. If medicine be employed the diet may be neglected, yet of the two methods of treatment this is the more important.

Pathological Consideration.—Dr. Ophüls, of San Francisco, said that from the pathological side he has seen cases in which large amounts of albumin with casts were present, yet no lesion of the kidney, even microscopically, could be seen. The only thing present was congestion. This is especially likely to be true in heart cases. On the other hand, there may be acute nephritis without any symptoms in the urine. It is in subacute nephritis that most of the urinary symptoms occur. In any case repeated examinations are necessary if definite information is to be obtained. It seems evident that the eventual classification of kidney diseases will be based not on minute but on gross pathology.

Hope in Nephritis.—Dr. L. D. Bulkeley, of New York, said that he suffered from acute nephritis in 1869, and had for a time very dark-colored urine with large amounts of albumin. His symptoms continued for months, and he had to give up work. He has since had several severe attacks, one of which he had several years ago in the Yellowstone, when his urine became almost coffee-colored and had a large amount of sediment. His only treatment has been milk for a few days and then a gradual resumption of a varied diet. Notwithstanding an apparently bad diagnosis he has continued to enjoy reasonable health and has been able to accomplish a large amount of work.

Proper Use of Milk.—He considers that milk is an extremely important agent in the treatment of nephritis, but it must be taken according to definite directions. It should be taken when the stomach is quite empty, usually about an hour before meals. In Dr. Bulkeley's experience, if taken warm and slightly diluted, it never disagreed. When mixed with other foods it always disagreed with him. Dr. Bulkeley has lived through a fifteen-year term of endowment insurance in the meantime, the elder Dr. Lambert

having accepted him as a risk for that term. He has been refused life insurance by other companies, but has also been accepted by some. Albumin is present in his urine, but careful attention to his diet for a week removes it and enables him to pass the insurance examination.

Starvation of Nephritis.—Dr. McCaskey, of Indiana, said that he had been struck years ago with the fact that patients suffering from nephritis became emaciated more from limitation of their diet than from their kidney affection. Seven years ago he made a gradual return to the ordinary diet. With regard to meat his rule is that if under a meat diet the excretion of urea goes up, then meat may be allowed. A vital point in the treatment of kidney disease is the management of the gastro-intestinal tract. Kidney disease originally is due to intestinal toxins, and they must as far as possible be eliminated. Even local treatment of the stomach may be of importance in nephritis. Dr. McCaskey considers that the presence of albumin is a stronger indication of degenerative disease than the presence of casts.

Bright's Disease Systemic.—Dr. Woods Hutchinson, of Portland, Ore., said that in no department of medicine is the desecration of ancient shrines more needed for truth's sake than in nephritis. Bright's disease is not a disease of the kidney primarily, but has its origin outside of the kidney. In arterial sclerosis, interstitial nephritis is only a single localization of the arterial condition. Undoubtedly the nephritis is due to a toxemia, usually of mild degree, but producing its irritant effect over long periods. The significance of albumin in casts has been exaggerated. It is not what is found in the urine, but what is not found that is of importance. If the kidney is accomplishing its work of elimination, then all is well. It is not irritant food, such as alcohol and red meats that are to be feared, but the putrefactive processes in the intestines with the resulting poisons made ready for absorption.

Milk as a Food.—Milk is supposed to be an animal food. It is white, as the symbol of purity; hence it is supposed to be an eminently fitting food wherever toxemic processes are to be lessened. As a matter of fact, milk produces a heavier percentage of work for the kidney than almost any other. Most of the milk ordinarily consumed contains more bacteria than sewage. On the other hand, red is the color of sin. Hence, red meats must be harmful, though as a matter of fact they throw less work on the kidney than other forms of food. The greatest care must be exercised in limiting the number of bacteria in the intestinal tract. The intoxication must be diminished and the patient built up.

Tuberculosis of the Kidney.—Dr. Francine, of Philadelphia, said that in many more affections than is usually thought kidney involvement occurs. Dr. Joseph Walsh, of the Phipps Institute, of Philadelphia, has recently shown that in nearly all cases of severe tuberculosis the kidney is affected. In 34 out of 53 kidneys there were tubercles to be found in the kidney substance. Giant cells and caseation were present before this diagnosis was made. In all the other cases, at least cloudy swelling was present. The effort of the kidney to eliminate the toxins and also the bacteria of tuberculosis gives rise to this nephritic condition, which must be considered as one of the elements of severe tuberculosis.

Premonitory Nephritis.—Dr. James J. Walsh, of New York, said that the real triumphs in modern medicine have come from the early recognition of disease and the prevention of further development. In tuberculosis the mortality has been reduced because at the present time the presence of pulmonary tuberculosis is recognized long before it would have even been suspected a few years ago. In fact, many of those now admitted to sanatoria for tuberculosis would be considered as scarcely patients at all. In surgery the early recognition and intervention in appendicitis and gall-stones are producing like beneficial results. If the preliminary stage of nephritis can be recognized and care taken of patients, then a great saving of life will surely be an accomplished fact.

Premonitary Symptoms.—Dr. Walsh considers that in many cases where, because of a history of nephritis in the family, for there is no doubt that a lower resistive vitality of kidney tissues is a common matter of heredity, or where patients have suffered from scarlet fever with subsequent nephritis, or from any other infectious disease with acute kidney involvement, special attention must be paid to certain symptoms that may then be of great significance. The most important of these is heightened blood pressure with accentuation of the second heart sound. This is manifested subjectively to the patient by a fluttering heart and by tendencies to nervous arhythmia of the heart. Nearly always the cause for these will be found in a disturbance of the gastral intestinal tract, and especially tendencies to constipation. Unfortunately people have taken to treating this symptom for themselves with quack remedies of different kinds, and many of the remedies employed are such as to produce an evacuation of the lower bowel, but without any relief of the disturbed conditions within the intestine, which are causative of the constipation. If these premonitory symptoms are persistent in cases that otherwise come under suspicion of nephritis developing, then careful dietetic regulation and insistence on freedom from worrying and intellectual strain may save life for many years by taking the stress off the kidneys.

Kidney Disease as a Systemic Affection.—Dr. Frank Billings, of Chicago, said that the toxic condition which leads to nephritis exists independently of the kidney. Its effects are sometimes seen upon the eye or upon the brain before there are any kidney symptoms. A man may die from apoplexy due to Bright's disease without there having been any serious involvement of the kidney. There may be cardiovascular changes without nephritis. This condition must be treated therefore not by the indications found in the urinary symptoms, but from the clinical observations of the individual's general health.

Diagnosis of Bright's Disease.—Dr. Musser, of Philadelphia, said that the diagnosis of Bright's disease can only be made after repeated examinations of the urine and even then due consideration must be given to other symptoms. The diagnosis of Bright's disease should only be made after the patient has been in bed for some time. This is especially true in cases in which gastro-enteroptosis has been present. With regard to the urine found in autopsy, the significance of any formed elements in it cannot be considered of value, since they are the result of death processes.

Dr. Fussell, of Philadelphia, said that he wished to give a warning note with regard to urinary examinations. At times they are of dubious signifi-

cance, but they certainly prove helpful in a great majority of cases. Examinations of the urine are of importance also in affections of the heart and lungs, because they often supply the danger signal of some coming complication.

Dr. Elroy, of Nashville, Tenn., said that there had been too much confidence in urinary examinations, but they must not be disregarded. That would be a step backward. They are helpful, but their evidence must be taken in connection with other conditions. The impression derived from the present discussion may be too unfavorable to them, and cause the pendulum to swing too far to neglect of them. Classifications of kidney diseases must be made, not on morbid appearances, but on etiology. The difference in the prognosis of kidney cases is undoubtedly due in many cases to the fact that portions of the kidneys sometimes remain healthy after other parts are giving the most serious signs. Nothing is more striking than this variation in the extent of pathological appearances in kidneys when seen at autopsy.

Boiled Meats in Nephritis.—Dr. Elroy has found that boiled meats have none of the objections of roast meats. While the extractives have all been taken up by the water, all the nutritious substance of the meat is left. They are not as tasty as meats otherwise prepared, to many people, but with care any objection to them may be overcome, and then they are valuable adjuncts to the dietary. Dr. Elroy's experience with them has been most satisfactory.

Blood Pressure Increased.—Dr. Lichty, of Pittsburg, Pa., said that in sphygmomanometric absorptions the increase of blood pressure gives the earliest hint of nephritis. Undoubtedly the recognition of the toxic conditions causing the rise of blood pressure might also be possible. In blood pressure studies and bacteriology apparently the future of our knowledge of nephritis belong. Notwithstanding the extensive study of the subject, little has been discovered that is of practical value, but the outlook is encouraging.

Dr. Stengel, in closing the discussion, said that while acute interstitial nephritis is not uncommon, it never becomes inveterate, and develops chronic interstitial nephritis, though this might be expected from the names. Chronic interstitial nephritis is a cardiovascular incident. Unfortunately there are some who in the presence of the classical tripod of urinary symptoms, abundant urine of low specific gravity and some albumin think only of nephritis, and neglect the arterial condition. There can be no danger in truth rightly understood, and while it would be eminently deplorable to cease making routine examinations of the urine, it would be equally deplorable in the present state of our knowledge to continue giving an exaggerated significance to the signs found in the urine without collating them with all the other clinical conditions present in the other organs.

Dr. Brown, of San Francisco, said that with regard to the development of nephritis not only the toxins of the digestive tract must be taken into consideration, but also those of perverted function in other organs, and of disturbed metabolism generally. The thyroid and other ductless glands doubtless play an important rôle in systemic conditions that may lead to nephritis and to simulating affections.

(To be Continued.)

SECTION ON OBSTETRICS AND DISEASES OF WOMEN.

FIRST DAY—JULY 11TH.

Chairman's Address.—Dr. C. L. Bonifield, of Cincinnati, after expressing some well-chosen words of thanks for the honor of being made chairman of the section, spoke of the affairs and welfare of the section during the past, and of the recent progress in gynecology and obstetrics. He spoke first of the desirability of greater permanency in the office of the secretaryship, suggesting a term of not less than five years. In order to render the duties less onerous, papers should be ready for publication when read and abstracts should be furnished promptly. A limit of thirty papers in the section is suggested. Long papers should be read in abstract. As to the scope of the papers to be read before this section, he suggests that it be broadened, and that the title of the section should include Abdominal Surgery.

New Advances.—One of the most widely discussed subjects of the year has been the treatment of retrodisplacements of the uterus. That so many plans have been advocated is proof positive that no ideal method has yet been found. Many retrodisplacements cause no symptoms. When symptoms result a question arises as to the kind of treatment, surgical or otherwise. Many patients are treated surgically that might better be left alone, and vice versa, and the importance of the subject demands that some criterion of differentiation should be understood. Retrodisplacement is essentially due to disproportion of the weight of the uterus and its supports; and to remedy the condition the more normal balance must be secured either by reducing the weight or strengthning the supports. Both are attempted. Hot douches, tampons, rest, purgation in some degree accomplish the former—rest, tonics and surgery the latter. The weight may also be reduced by curettage, trachelorrhaphy, or cervix amputation. The supports may be strengthened by ventrosuspension, by Gilliam's operation, shortening the round ligaments. What cases may be treated non-surgically? In all such the uterus must be freed from adhesions and the appendages healthy and non-adherent, the posterior cul-de-sac deep and the perineum intact, so that tampons and pessaries may be effective. The time limit of treatment must be long. As to surgical methods, their great number is at times confusing. In complicated cases opening of the abdominal cavity is advisable. Here one has free scope and can better appreciate the defects and devise sensible methods of relief. Shortening the round ligaments he now performs as follows: The ligaments are stripped of their peritoneal coverings, and folded once; the folds are then stitched together with chromicized gut, the folded portion pushed through the slit in the peritoneum and the ligament stitched again toward its distal end and the peritoneum closed. He rarely trusts to shortening of the sacro-uterine ligaments.

Another problem of much interest has been cancer of the uterus. He believes that attempts at treatment are justifiable in the early stages. The early and high amputation is, in his mind, a justifiable procedure at times.

Toxemia of Pregnancy.—This subject should be reckoned among those of considerable import, and Dr. Bonifield referred to the practical results that had followed the use of the veratrum viride in treatment. The "limitation of families," or race

suicide, is also a subject that is much in discussion and in urgent need of careful study. He advocates a return to the "simple life."

Innocent Fibromyoma of Uterus.—Dr. Thos. B. Eastman, of Indianapolis, in his paper, after first noting the prevalence of the demand from many sources that all fibromyomata should be removed, on the ground that in many cases complications threatening life may result, states his belief that in a very large proportion of practically all fibroid tumors there exists in the tumor itself at the time of diagnosis, or there will develop in the tumor, other conditions which warrant their removal. Notwithstanding the fact that many undegenerated fibroids are seen at autopsy, the position taken, he believes, is justifiable. He summarized a number of references in recent literature—Camur, Cornil, Haultain, Van Franke, Smith, Fenwick, Emmett, Noble, and others, all of whom report various types of degeneration in fibroid tumors. Extensions of malignant tumors are by no means uncommon. Such instances have been reported by Schraper; extended carcinomata by Buhl, Röhrig, Cullen, Ruge, Veit, and others. Webster's lists were particularly instructive, as also those of Frederick's 788 cases.

Degeneration.—In the writer's own studies 169 cases are recorded. Thirty-one degenerations were found, as follows: necrobiotic 10, sarcomatous 1, suppurative 1, calcareous 2, myxomatous 3, adenocarcinoma 3, telangiectoma 4, cystic 7. The author then spoke of seven cases in which the histories were particularly instructive. In case one a cardiac degeneration seemed to be related to a neglected fibromyoma. A second case died, after delaying and operation, of necrobiotic degeneration. A third fibroma showed similar changes on successful removal, and a fourth, after removal, contained sarcomatous cells. Other histories were of a similar character. In all one common character was present. There was a lack of symptoms pointing to any marked pathological feature other than the tumor, and yet in all, after removal there was abundant evidence not only to justify the operation, but to show that it would have been dangerous to the life of the patient to have been guided solely by the apparent innocence of the fibromyoma. Dr. Eastman was emphatic in stating that the *laissez faire* method, because of the oncoming of the menopause, was very inadvisable.

Etiology and Treatment of So-Called Endometritis.—Dr. E. F. Tucker, of Portland, Ore., had found that in six modern classical text-books on gynecology no less than 27 varieties of endometritis were described, and to further complicate the question the authors were not sufficiently *en rapport* as to acknowledge any one variety throughout. They presented a charming combination salad of classifications founded on etiology, pathology, symptomatology, etc., etc. He expressed the hope that the younger gynecologists might be able to extricate themselves from such a tangle. After considering briefly the histology and the general pathological features of the endometrium, he went on to say that he did not believe that a true endometritis could exist apart from the direct contact of some irritant, microbic or otherwise. The endometrium was naturally involved in general uterine conditions, and one should look to an interference with the general uterine condition to correctly interpret endometrium changes. Dr. Tucker stated his disbelief in a gonorrheal endometritis. An infection of the cervical endometrium he believed in, but the endometrium of the body of the uterus does not become infection. He further expressed the hope that a more rational pathology of endometritis might result from the concerted efforts of pathologists and gynecologists.

Failure After Successful Gynecological Operations.—Dr. W. E. Gould, of Superior, Wis., in this paper defines a successful operation as the execution of a technic according to the intent of the operator and the recovery of the patient from the operative procedure *per se*, and then contrasted this definition with the question of success or failure in giving to the patient relief from the disorder for which the operation was devised. Many operations have been devised and been beautifully carried out. The operation has been a success, but the patient comes back to her physician, or to someone else, an invalid in much the same condition as before. Dr. Gould then spoke of some of the pelvic conditions in which this history was all too prevalent. The most important of these were lacerated perineum, lacerated vaginà, tearing in the pelvic floor, particularly an involvement of the puborectal muscle, which muscle should always be examined carefully after parturition. To best repair many of these conditions time is necessary, and while immediate suture after tearing may be at times advisable, he believes that a more careful and useful operation can be done later. Prolapse of the uterus and telescoping of the vagina are not unusual sequelæ of hasty repair, and genereal visceroptosis is a not infrequent accompaniment.

Retrodisplacements.—Uncomplicated retrodisplacements are usually responsible for very few symptoms, and yet at least 50 operations have been devised, and, unfortunately, performed on uncomplicated as well as complicated cases. After a preliminary course in such operative work, Dr. Gould has observed that his patients did not recover, and a more careful study of his case records showed that the pelvic floor was almost always at fault and that a movable non-infected uterus was rarely a cause of symptoms, no matter what its position; but that a fixed, injured, and infected uterus almost invariably would, irrespective of its position, normal or otherwise.

Ovarian Operations.—Conservative operations on the ovaries were another cause for failure after intrapelvic operations. Following infections the condition of the tubes and overies is always serious. If conservation of ovarian tissue is a desideratum it would best be done by a supravaginal amputation of the uterus, and an excision of the Fallopian tubes and accompanying lymphatics, rather than by doing conservative work on the ovaries alone and leaving the uterus.

SECOND DAY—JULY 12TH.

Some Cases of Unusual Type of Extra-uterine Pregnancy.—Dr. J. H. Carstens, of Detroit, Mich., gave a graphic account of two women who were sent to him within a few days of each other, by physicians who had treated them for some time under the impression that they had some inflammation, or had had a miscarriage. Both had temperature and a swelling in the side, and were in a septic condition. In one case a sac containing a four-month fetus with decomposed placenta was found adhering to the left broad ligament. In the other the operation following a diagnosis of abscess in the left broad ligament removed a quart of pus in the abscess cavity and decomposed tissue, which was recognized as placental. Both women made speedy recoveries.

Dr. Carstens expressed his amazement at what some persons could go through, and pressed home the lesson that extrauterine pregnancy is more often met with than is ordinarily expected, and pointed out the fact that the patient often unintentionally throws the doctor off his guard. His conclusion was that extrauterine pregnancy must always be in the physician's mind in cases of sudden onset of pelvic trouble; that the least irregularity of menstruation is suspicious; that inflammation and sepsis following a supposed miscarriage are often due to ruptured ectopic pregnancy, and that operation either by the vaginal or abdominal route is always indicated.

Postoperative Pelvic Exudates.—Dr. W. F. B. Wakefield, of San Francisco, spoke of the frequent occurrence of exudates following operations for pyosalpinx, hydrosalpinx, hematosalpinx, ovarian cystomata, hematomata, abscesses, and neoplasms of the uterus or peri-uterine structures. Always a thinkable condition, its practical importance seems to have been rarely emphasized. Following an observation in which a patient developed a round, orange size, fluctuating tumor, after an operation for pyosalpinx. Dr. Wakefield had studied the condition and has been led to believe that in at least 60 per cent. of the patients on whom pelvic operations are performed postoperative exudations or indurations may be found. These tumefactions are rarely observed while the patient is in bed in the hospital; it is only when a more active life is taken up that they become prominent, and then often cause as much disturbance and distress as the original complaint. He excludes those exudates that result from microbic infection, with its consequent rise in temperature, in pulse rhythm and other septic signs. Literature is almost silent concerning these exudates. The treatment of these conditions consists in local measures of hot douches, depleting tampons, and rest in the recumbent posture—preferably with the hips elevated.

Hernia of the Fallopian Tube—Without the Ovary.—Dr. Frank T. Andrews, of Chicago, makes this the subject of his paper. He reports four cases, two of which occurred in his own practice. He further offered a tabulated study of 353 cases, in which there were 42 with hernia of tube without the ovary; 76 of hernia of tube and ovary; 162 of hernia of ovary without tube; 43 of hernia of non-gravid uterus, and 30 of the pregnant uterus. Hernia of the ovary has been known almost 3,000 years. Dr. Andrews reported in detail the four cases, and had prepared a complete summary of all available reports of similar observations. No differential symptoms were reported, the condition having been found either at operation or autopsy.

Gonorrhea in the Female.—Dr. L. H. Dunning, of Indianapolis, presented a careful and exhaustive paper on this important topic. He considered the question of gonorrhea in the adult woman and its effects on her reproductive organs only. He said that he had been led to believe that the diagnosis was simple, and that the disastrous results of gonorrhea were inevitable. With reference to diagnosis, while it is true that it is easy in the acute stages, it may be extremely difficult in the chronic and subacute cases. The gonococcus becomes sequestered so completely that no refinement of technic can demonstrate its presence. The practical test of the presence of the disease in husband or lover, and the occurrence of an inflammation of the urethra, vulva, vagina or cervix in a healthy woman after intercourse is sufficient to establish a diagnosis. With reference to the topic of sterility Dr. Dunning takes issue with the report of the New York Committee of Fifteen, who state that 50 per cent. of the cases of sterility in the married woman are due to gonorrhea. He has carefully analyzed his statistics of 548 cases. An exhaustive research shows that 10 per cent. of these women were sterile, and of these one in six could he prove the presence of the gonococcus. Twenty-one per cent. of these women had made direct efforts to prevent conception, and other causes were: anteflexion 6, fibroid 11, undeveloped uterus 5, retroversion and retroflexion 4. Thus at least 45 per cent. could be definitely shown to be due to other causes than gonorrhea. In Dr. Dunning's histories 19 per cent. of the women had had only one pregnancy. The most important cause of this he had found was deliberate interference with the process of conception. The next important cause was undeveloped uterus, 27 per cent. of the patients showing this condition.

Concerning the matter of the relation of gonorrhea to pelvic disease, Dr. Dunning further contraverts the opinions expressed by the Association Committee on Prophylaxis of Venereal Disease. In 1904, of 167 operations for pelvic disorders, 27 per cent. only could be ascribed to gonorrhea—not the 80 per cent. of the Association's report. He further reported statistics of the General Hospital and the Bobb's Dispensary, in which he showed that whereas gonorrhea was common enough, and that its sequelæ were disastrous, they were not as bad as some writers would seek to maintain.

Pyosalpinx and a New Operation.—Dr. W. D. Kelly, of St. Paul, discussed the technic of a new operation for this condition, with the report of 59 cases. The author's operation is as follows: Trendelenberg position, bowels pushed back, general walling off of the abdominal cavity. The broad ligament is sought for and the finger is invaginated between the broad ligament and the mass, and the tube partially freed at distal end. The index finger is then forced between the broad ligament and the mass. A cutting needle, half curved with No. 3 pyokatnin is passed between the mass and the broad ligament onto the finger and the broad ligament is tied off. Scissors are used to sever the tissues between the broad ligament and tube. The finger is still further advanced, and an overthrow provisional suture is taken in broad ligament, which usually includes the ovarian artery. The separation of the mass is continued by the farther advancement of finger, application of another provisional suture, and the severing of the mass from the broad ligament with the scissors, a little at a time. Immediately upon dividing tissue, the provisional overthrow suture is tightened, preventing hemorrhage. A provisional Bilroth suture may be put in. The finger is still further advanced toward the uterus and broad ligament severed as before described until the horn of the uterus is reached. The omentum and bands of adhesions are tied off after the uterus is raised, an elliptical incision of tube made, and its removal is accomplished.

Fourth Report on Goldspohn Operation.—Dr. A. Goldspohn, of Chicago, contributes a further study of the results of his operation. During 1902, 1903, 1904, he had operated on 55 patients by his operation. He contends that the artificial ligament operations should be discarded; that the round ligaments are the only available means, and that the bi-inguinal

shortening of the same is the best method, and round ligament suspension the next best. He cited statistics to maintain his position.

Conservation of Normal Anatomy in Gynecology.—Dr. Daniel H. Craig, of Boston, after commenting on the wave of conservatism that has swept over the world in the matter of gynecological operations, being particularly apparent in America, develops the thesis that there is a wide field for such conservative surgery, and would extend the tendency to the fields of uterine displacements and plastic gynecologic surgery. Dr. Craig stands for a greater catholicity in operations. That there are numerous operations for a diseased condition does not argue that an ideal operation is lacking. Empiricism in surgery is to be as warmly condemned as in internal medicine. As the result of a circular letter to twelve American gynecologists, asking for comments on their own operations for uterine displacement, he found that nine found their own operation applicable to nearly all their cases. A few had modified or given up their original procedure. These results tend to confirm Dr. Craig in the opinion that good surgery would exercise a wide individual choice of operation. Dr. Craig's main contention is that a surgical procedure that follows anatomical lines is preferable to one that may accomplish a like result, but is not in accordance with anatomical principles. Thus uterine suspension by means of its natural ligaments is preferable to anchoring it to the abdominal wall.

Repair of Perineum.—Dr. G. B. Somers, of San Francisco, presented an illustrated paper on a developed technic for perineal tears.

(To be Continued.)

SECTION ON NERVOUS AND MENTAL DISEASES.

First Day—July 11th.

The meeting was called to order at 2.20 P.M. by the Chairman, Dr. J. H. McBride, Pasadena, California.

Chairman's Address.—This was read by Dr. J. H. McBride, of Pasadena, Cal. He urged that every doctor be an investigator in his daily work and stated that more had been accomplished by great physicians and surgeons than by mere experimenters. He felt that in bedside investigation much of the future advances would arise, and expressed the belief that the progress would be more in the line of preventive medicine than a therapeutic nature.

Report of the Committee on Drug Addictions.—This report was read by the Chairman, Dr. Smith Ely Jelliffe, of New York. In this report, which was of a preliminary nature only, the Committee spoke of the need for a systematization of the present knowledge concerning the various drug addictions. By reason, however, of the great number and variety of these habits the Committee had deemed it wise to restrict its suggestions to the field of the use of opium. They made several recommendations and suggested a number of topics for investigation. Among these were (1) the need for a more accurate knowledge of the distribution of the habit. Opportunities for the collection of statistical material were particularly easy of grasping by workers in jails and reformatories. Hospital statistics were of less value. (2) The psychology of the euphoria was suggested as a fruitful topic. (3) The investigation of the vassomotor control and its diseased manifestations offered another field for observation. (4) Still another avenue for research had been suggested by the work of Faust on immunity to morphine. The phenomenon of tolerance to morphine is so marked that it seems not unlikely that there must be some protective mechanism in the body that is made operative. The great dissimilarity in the cerebral structures makes it hazardous to argue from animal experimentation, but the results thus far attained make it worth while to continue the study. (5) The relation of the chemical structure to the physiological action of the allied compounds was suggested as another topic that might profitably be taken up by the members. (6) The causes for symptoms of abstention were suggested as a most fruitful line of research. Little of value has appeared along this line. The Committee was continued for another year.

Defects of Will in Practical Medicine.—This paper was read by Dr. H. T. Pershing, of Denver, Col. He said that voluntary motion is caused by the idea of the motion, which is the memory of sensations previously caused by the motion, and is in a definite kinesthetic center, connected by asociation fibers with the corresponding motor center. He dwelt at length upon the production of the processes of volition, acceleration, inhibition and deliberation and the effect of cortical exhaustion and the emotional states thereon. He detailed the method of the practical application of these principles in alcoholism, drug habits, sexual errors, neurasthenic defects and hysterical paralysis, and favored the accomplishment of the results by rewards rather than by punishments.

Dr. D. R. Brower of Chicago believed that the majority of the cases began in will disturbances, rather than mental disturbances, and that the failure to discover the inciting factor was one reason for the non-success in treatment. He emphasized the value of morphine in the treatment of these mental conditions, but its use should be without the knowledge of the patient, and properly guarded by other agents to prevent interference with elimination.

Dr. H. A. Tomlinson, of St. Peter's, Minn., stated that the inhibitory centers of the brain existed in the prefrontal region, more particularly the second and third prefrontal convulutions, and that destruction of these would interfere with this function in proportion to the extent thereof, and believed that greatest knowledge in this regard would be obtained by a closer study of the circulation of the brain as it affects elimination.

Dr. G. R. Clark, of Dearborn, Mich., referred to the various forms of dementia præcox, which, while many of them presented different clinical symptoms, from a psychological point of view, showed the same picture, and commented on the value of the previous history and origin of these cases as an aid to treatment.

Dr. J. A. Gilbert, of Portland, stated that the will was a unity and did not believe that it was possible to devise any classification of physiological psychology that is founded strictly upon a material basis.

Dr. Pershing, in closing, stated that he believed many of the perversions of the will were due to the fact that the higher development of the cortical cells had been destroyed and the mind had reverted to its primitive state.

Neurasthoid Conditions—So-Called Neurasthenia.—This paper was read by Dr. Robert Hessler, of Logansport, Ind. In it he outlined in detail the nervous symptoms produced by the inhalation of a contaminated atmosphere, which is most likely to

manifest itself upon the resident of the country coming into one of the cities to live, and in many cases a removal to a pure atmosphere will be a sufficient remedy for the condition. A number of cases were reported in detail illustrative of the position maintained in the paper.

The Localization of the Higher Psychic Functions, Especially with Reference to the Prefrontal Lobe.—Drs. Charles K. Mills and T. H. Weisenberg, of Philadelphia, presented this paper, which was read by the Secretary. The authors divided the cerebral cortex into the following areas of representation (1) sensations and movements; (2) of concrete memories; (3) of abstract concepts and higher psychic functions in general. Detailed evidence from comparative physiology and histology, physiological experiments, clinicopathological records and the study of biological principles was presented and the significance of localization of centers for speech, writing, etc., and the bearing of general on psychic localization considered in detail. The work and views of Hughlings Jackson, Ferrier, Schäfer, Phelps, Wundt and others were reviewed and commented on, and a case of lesion of the prefrontal region occurring in a man seventy-one years of age reported.

Dr. Tomlinson, of St. Peter's, Minn., stated that his personal experience confirmed that of the readers of the paper, and that the symptoms were first noticeable in that portion of the brain which had been the most active.

Dr. William House, of Portland, Ore., reported four cases illustrating the conclusions reached by the writers of the paper. In one the symptoms were due to a bullet, and in three others to foreign growths, one of a sarcomatous, and another believed to be of the carcinomatus variety.

Landry's Paralysis with Report of a Case.—This was read by Dr. Robert McGregor, of Saginaw, Mich. He discussed the influence of toxic agents and septic conditions as causal factors, and the differential diagnosis between this condition and multiple neuritis and acute anterior poliomyelitis. He reported a case occurring in a young man twenty-three years of age with a negative family and personal history, in whom there was complete paralysis of the lower and upper extremities within three days, and which after several months made a good recovery.

Types of Multiple Neuritis.—Dr. David I. Wolfstein, of Cincinnati, considered this condition under (1) toxic cases due to poisons without the body, such as alcohol, mercury, lead and arsenic; (2) similar poisons within the body due to infectious diseases, such as gonorrhea, influenza, puerperal condition, etc., (3) those due to diseased states of the body, such as rheumatism and diabetes; and (4) cases due to exposure, etc. The author reported a case illustrative of each of these groups.

Dr. H. T. Pershing, of Denver, reported the case of a metallurgist in whom the multiple neuritis was produced by arsenical poisoning. The administration of iodide of potassium markedly increased the pain, which he explained on the theory that it rendered more soluble the arsenic within the body. The man afterward made a good recovery.

Dr. Brower, Chicago, recommended the employment of large doses of quinine with strychnine to keep up the respiratory and circulatory functions in cases of multiple neuritis.

Nervous and Mental Manifestations of Pre-pernicious Anemia.—F. W. Langdon, of Cincinnati, presented this paper, which was read by the Secretary. The author called attention to the fact that a neurologic syndrome, fairly constant, with the following characteristics: (1) General ill health; (2) mental symptoms; (3) sensory disturbances, *a*, subjective, and *b*, objective; (4) Babinski's sign; (5) ataxia of gait and station; (6) diarrhea is present in a large number of cases who subsequently develop pernicious anemia. He cited the necessity for a blood examination in cases of this character, although in many instances the syndrome may precede even the microscopical evidences of the disease in the blood. He stated that the relation of impaired nervous health to blood formation may be important in a practical sense, and cited several cases illustrative of the principles laid down in his paper.

Dr. David I. Wolfstein, of Cincinnati, Ohio, did not favor the classification advanced by the author, and stated that in his experience he had seen no cases which presented such a marked clinical picture, where the condition would not have been evidenced by the blood examination, and expressed the belief that the author had included under this classification many cases that were ordinarily considered as pernicious anemia.

Dr. H. A. Tomlinson, of St. Peter's, Minn., felt that back of these cases of anemia there was an underlying auto-intoxication, which is the causative factor of the anemia and which in turn is produced by faulty elimination, the correction of which will generally remove the anemia, and that as a causative factor in the production of the nervous symptoms, we usually have a previous instability of the individual.

Periodic Paralysis.—Dr. G. E. Holtzapple, of York, Pa., read this communication, which was based upon the personal observations of the author during the past twenty-two years, of a family subject to this condition, covering four generations thereof. Six members of the family have died of this condition, and some of the members who are not subject to the paralytic attacks are the victims of periodic headaches. The paralysis in most cases begins in the lower extremities and may vary in duration from a few hours to three or four days. During the attacks none of the special senses are involved, but there is simply a loss of the power of locomotion. The attacks usually begin about puberty. The author reported in detail the physical condition of the members of the family suffering from these periodic paralyses; those suffering from periodic headaches, and those in whom no symptoms had occurred; also the results of 139 urinalyses, taken from all three classes of the cases, and a striking feature was that the paralytic group showed a marked diminution in the quantity of urea excreted.

Dr. Hilbaum suggested the value of an autopsy in the cases, and the author stated that so far this had been impossible to obtain, but that they had secured the consent of one member of the family now seventy years old to perform a post mortem at his death.

The Tabetic Foot; Its Importance in the Causation of the Ataxia of the Lower Extremities.—Paper by Drs. Sidney I. Schwab and Nathaniel Allison, of St. Louis, was read by Dr. Schwab. The paper was directed principally to the restoration of the gait in locomotor ataxia, and the methods employed and the experiments made were based upon the work done on a series of fifteen cases, extending over a period of about two years. The theories as to the causation of this condition were discussed at considerable length,

as was also the mechanics of the tabetic gait, the tabetic functional flat foot, and the hypotonic ankle joint, together with the importance of these factors in the establishment of the typical gait, with diagrams, photographs and tracings illustrative of these points. The authors then took up the efforts which they had made toward remedying the patient's manner of walking and the position of the foot and ankle. He stated that the pronation of the foot is a factor in all these cases and to its correction by mechanical appliances the physician's effort must be directed. The shoe which is employed by the authors in these cases has the sole so constructed as to counteract this pronation, and an additional assistance has been found to result from putting cleats on the sole. Several cases showing the results of this method of treatment were reported, prominent among which was that of a motorman, whose condition at the time of beginning treatment was such that he could not follow his regular occupation, but by means of the shoe he is now able to go about his customary employment for eight hours a day. The authors do not claim this to be a cure for the locomotor ataxia, but merely a mechanical correction of the gait.

Dr. H. T. Pershing, of Denver, in commenting on the value of the methods advanced by the authors, felt that anything that would enable the patient to walk even moderately well would be of very great service. He referred to the fact that a certain shoemaker was reputed to have made and sold certain shoes at an enormous price for the relief of this condition, and believed that the best results in such cases would be attained by the conjoint work of the neurologist and orthopedist, as was done by the authors of this paper.

Dr. John Punton, of Kansas City, felt that any measure which would enable the physician to relieve the gait of these patients was of great value, and that if the claims made by the authors for this method were substantiated it would certainly be welcomed by the profession as well as by the patient.

Dr. Smith Ely Jelliffe, of New York, referred to the tendency of physicians to tire of chronic nervous cases, such as patients suffering with ataxia, and believed that from this cause alone many of such patients drift into the hands of irregular practitioners. He referred to a shoemaker in New York, who had also been selling shoes at an enormous price for the remedying of this defective gait, and said that if physicians would take as much trouble as Dr. Schwab had done there would be fewer deluded tabetics in the world.

Dr. David I. Wolfstein, of Cincinnati, had also observed shoemakers attempting to correct this condition, as related by the last speaker. He believed that the work of the neurologist must of necessity go hand in hand with that of the orthopedist.

Dr. J. W. Putman, of Buffalo, believed that the greatest advance in the treatment of locomotor ataxia was made by Fraenkel when he introduced the Fraenkel movements, and felt that in conjunction with these movements the mechanical appliances were very valuable, but that without them they would be of little avail.

Dr. Schwab, in closing, stated that the treatment had not been in use a sufficient length of time to give any opinion as to its permanency. He stated that the greatest relief could be afforded to the tabetic patient's mind by correcting his gait, and that very few of them paid any attention to an Argyl-Robertson pupil or absent knee jerk, if the gait was fairly normal. He stated he did not believe this treatment had any effect upon the hypotonicity of the muscles or joints, and that the measure was advanced rather as a means of correcting the mechanical defects of gait than as a therapeutic agent.

Clinical Reports of Some Cases of Hysteria.—This paper was read by Dr. C. C. Hersman, of Pittsburg, who considered the subject under two subdivisions (1) hysterical hyperpyrexia, which is usually found in adult females between the age of eighteen and forty years, although he has observed it in males and in children as young as five years. He stated that he had observed a temperature of 118° F. in two adult females; and in a neurotic child a temperature of between 105° and 106° F. Most of these patients have violent tempers and evince but little desire to control them; and (2) hysteria agitans, which is found mostly in adults, either male or female. Either the extremities or the whole body may be involved and the motion may be either to and fro, rotary or otherwise. The body when in a supine position may perform all kinds of twitching, such as abdominal jerkings, similar to that during hiccoughs, but much more frequent, rapid facial gyrations, rubbing the feet together, falling out of bed, etc. Several illustrative cases were reported, and the author cited as an essential element in the treatment the co-operation of the patient.

Psychopathic Manifestations of the Non-insane Psychoneuroses.—Dr. John Punton, of Kansas City, in his paper said that he felt that psychology should be studied more carefully by the general practitioner than it is at the present time, and particularly by the neurologist. He felt that there were many cases which begin as minor psychoses, which, if they had been recognized in their incipiency, were susceptible of cure, and that they were also extremely susceptible to prevention . He referred particularly to the psychopathic characteristics of the clinical phenomena attending such conditions as neurasthenia, hysteria, dementia præcox, alcoholism, etc. He stated that if one made distinct classification of the neuroses and the psychoses insanity would be found in each group, and that as far as the prognosis was concerned much depended upon the early recognition and treatment. These conditions are often the forerunners of insanity if not corrected before the inhibitory influence is overwhelmed thereby. He suggested the term psychosomato-esthenia to cover many of these conditions.

Dr. H. A. Tomlinson, of St. Peter, Minn., felt that much of the discussion on this subject was mere quibbling over terms and expressed the opinion that a patient must be either sane or insane, although there may be varying degrees of the condition.

Dr. Smith Ely Jelliffe, of New York, thought the term psychoneuroses was much more preferable to denote the minor conditions than the term insanity, as it did not create the same stigma in the minds of the laity, which he felt it was unfair to thrust upon the unfortunate individual and his family. Names were not entities. Diseases themselves were not entities, particularly not those of the mind, and therefore a slavish adherence to descriptive titles was unfortunate. Nosology was a necessary evil, but in psychiatry it had been carried too far and that too much footless discussion was being carried on about words rather than things.

Dr. H. T. Pershing, of Denver, felt that the important questions to be considered were: Is the mind so changed by disease, or is it so imperfectly developed that the individual is unable to attend to the ordinary affairs of life; if it is then he is insane; if not, then he is not.

Dr. J. H. McBride, of Pasadena, Cal., stated that word insanity had a stigmatic and a distasteful significance particularly to the laity, and expressed the belief that there would be a word substituted for this term which would not convey the same idea to the laity, which would no doubt likewise in course of time assume the same meaning, when it would be necessary to substitute another.

SECOND DAY—JULY 12TH.

Public Care of the Insane.—This paper was read by Dr. J. M. Barstow, of Council Bluffs, Iowa. He gave a résumé of the laws of the various States regarding this subject, and believed that any person who was so mentally deranged as to be unable to properly care for himself or his property should be considered a ward of the State, and that when the State assumed the guardianship of such individuals, the property rights thereof should pass to the State subject to reports of the conduct there to be made to the proper tribunals at stated intervals. He felt that the States owed it to the profession and their citizens to provide laboratories and means for the clinical and pathological study of these conditions, and that the interests of the patient, as well as the public at large and the profession would be advanced thereby. He did not feel that the insane hospitals offered a suitable field for the proper investigation and study in these cases.

Dr. G. R. Clark, of Dearborn, Mich., felt that while the pathologist and histologist had been able to observe certain changes by their work in the State laboratories, there was a wide field for the clinician in these cases, referring particularly to the change in the odor from the skin and the change in the vasomotor circulation noted druing the life of these patients.

Psychosis of Morphinism.—Dr. T. D. Crothers, of Hartford, Conn., read this paper. He stated that moral paralysis was the most prominent and constant symptom, appearing in many different forms and degrees, depending on the defects of sense and feeble reasoning. The power to discriminate between true and false and right and wrong is weakened, and there is an intense desire to explain reasons and motives of conduct. The language centers suffer, and the methods of expression vary widely, being sometimes expletive, while in others violent terms, and in still others vague, doubtful terms with double meanings predominate. In a few cases criminal impulse and alternating consciousness, posing in new characters requiring mental skill and cunning, are prominent, egotism being the chief motive and prominent among the cases are swindlers, forgers, etc. Later in the career the mental strength gives away and criminal conduct and motives cannot be concealed; double personality is a mental weakness remaining during life.

Dr. John Punton, of Kansas City, Mo., discussed the subject chiefly from its medicolegal aspect and dealing particularly (1) with the ethical and (2) with the legal side of the question. He raised the question as to whether a physician would, when a patient came to him and admitted that he was a morphine habitué, and the patient was holding a position in which his condition might endanger the lives or property of others, divulge that information, citing the opinion of a leading member of the legal profession that he had no right to do so, which view was concurred in recently by the *British Medical Journal*, while the newspapers of this country took an opposite position.

Dr. G. R. Clark, of Dearborn, Mich., suggested that the acquisition of the morphine habit in epileptic patients would probably oftentimes produce the criminal manifestations and asked if the author has investigated the subject from this direction.

Dr. Crothers, in closing, stated that he had no doubt in many of these cases there was an epileptoid taint, but that why the exhaltation of reasoning along certain lines should be so prominent had not yet been determined. He cited cases illustrative of the criminal propensity, and referred to the difficulty of knowing what disposition to make of such persons when caught, expressing the belief that the appropriate place was in an institution.

Comparison of the Quick and Slow Methods of the Treatment of Morphinism.—Dr. A. J. Pressey, of Cleveland, Ohio, considered all methods in which the drug was undertaken to be withdrawn within five or six days as quick methods and where the period extended over a long time it was denominated the slow method. He stated that hyoscine hydrobromate was being much used for the rapid withdrawal of morphine in many cases, and that while the results have been apparently satisfactory in some cases, experience has shown that the danger is too great to warrant this form of treatment, believing that the patients would regain their health and strength quicker and more surely by the slow treatment, as while the withdrawal was going on, therapeutic measures could also be instituted. He stated that in many instances following the sudden withdrawal the patient's reason was deranged, and although it usually returned in periods varying from a few weeks to some months, it had in some instances been permanently affected. He cited several cases illustrative of the dangers of this rapid mode of procedure.

Dr. T. D. Crothers, of Hartford, Conn., referred to the frequency of the morphine habit among the medical profession, and expressed the belief that there was no drug which was a specific for its relief. He believed that the slow withdrawal was the most successful basis of treatment and urged the necessity for more attention to the subject in the medical colleges.

Dr. Brainard, of Los Angeles, felt that the percentage of physicians addicted to this habit was not quite as large as stated by the last speaker (10 per cent.), and Dr. Pressey, in closing, agreed with Dr. Brainard.

The Psychoses of Heart Disease.—This paper was read by Dr. William House, of Portland, Ore., which consisted chiefly of the clinical histories of 25 cases which had come under his observation in which these conditions were associated. He first classified the cases under two groups (1) slight forms, which did not produce severe mental symptoms; and (2) aggravated forms of organic disease, where the mental infirmites recorded were inferior to the physical In the severer forms, the treatment must be directed chiefly to the physical condition, while in the milder forms both may be treated coincidentally. Etiologically he divided the condition into four classes: (1) local conditions, such as palpitation, tachycardia,

etc.; (2) local pain, such as angina pectoris; (3) disturbances of the circulation, and (4) secondary lesions of the brain, giving a careful résumé of the symptomatology of each group.

The General Conditions Associated with Insanity; their Correlation and Certain Deductions.—Dr. H. A. Tomlinson, of St. Peter, Minn., read this paper, which was based upon a statistical study of 2,366 cases admitted to the St. Peter's Hospital within the past nine years. The author considered in detail the development of the human mentality from the embryologic state to its full capacity, remarking particularly upon the fact that the higher elements were the last developed, and if there was an arrest of development or defective development from any cause, it was these higher centers that suffered. And also that when the mental system was attacked by degenerative or destructive changes, it was these same highest centers, which were the last constructed, which were the first to be destroyed, and the destruction progressed in the reverse order of the development. Appended to the paper were tables showing the results of numerous analyses of the various secretions of the body, as well as examination of the blood, and the urine and other excretions. He also reported some cases in which the brain of the patient had been observed during life by means of trephined openings, and contrasted the conditions there found with those noted at the autopsy table. He did not favor the classification of Kräpelin, and believed that the therapeutic measures should be directed to the physical factors producing the irritating cause.

Dr. G. R. Clark, of Dearborn, Mich., felt that the classification of Kräpelin was one which was justified from a psychological basis. He believed that in many instances the nervous instability dated not from birth, but from conception, and suggested that possibly, if we are able to obtain a fuller knowledge of the function and pathology of the various glands, some of the problems may be cleared up.

Dr. H. G. Brainard, of Los Angeles, Cal., felt that the basis of insanity was principally two general conditions (1) nervous instability, and (2) stress, and that the question of defective metabolism played a prominent part in the production of the manifestations.

Dr. J. H. McBride, of Pasadena, Cal., referred to the classifications of insanity by Kräpelin and Dercum, and viewed that of the latter as one of the best we have. He suggested that Dercum's classification should be more generally adopted.

Dr. Tomlinson, in closing, stated that his objection to the classification of Kräpelin was that he used metaphysical terms to describe physical conditions, and that any insane patient who was observed from day to day would manifest all the symptoms described by that writer. He felt that such terms as excitement, depression and degeneration could have but one meaning, while there might be varying degrees thereof.

Officers.—The following officers of the Section were elected for the ensuing year: Chairman, Dr. Wharton Sinkler, Philadelphia. Secretary, Dr. David I. Wolfstein, Cincinnati. Executive Committee, Drs. J. H. McBride, Pasadena, Cal.; H. T. Pershing, Denver, Col., and F. W. Langdon, Cincinnati, Ohio. Member of the House of Delegates, Dr. J. H. McBride, Los Angeles, Cal.; Alternate, Dr. David I. Wolfstein, Cincinnati.

(To be Continued.)

BOOK REVIEWS.

A Treatise on the Diseases of the Nervous System. By L. Harrison Mettler, A.M., M.D., Associate Professor of Neurology, College of Medicine of the University of Illinois. Cleveland Press, Chicago.

Dr. Mettler confines his treatise to the subject-matter of neurology, thus his title needs some limitation. Psychiatry is founded on disease of the nervous system, no one can doubt. But what is in a name?

In his opening paragraph the author states that the "neuron doctrine" is now an accepted fact, but he does not state its limitations, and when he gives us a treatise in "consonance with the theory" he suffers from the weaknesses that too servile an adherence to a theory must inevitably entail.

Dr. Mettler has given us a big book—990 pages—and withal a useful one. A very distinctively personal equation shows itself throughout the volume and adds to its interest. Here is no stenographically dictated text-book from the latest German monograph, but a work bristling with the author's own observations, good and bad; logic and personalities.

His chapter on hysteria is certainly one of the best we have seen in any English text-book. He adopts the essential psychotic nature of hysteria, following the French authors closely, and is consistent in his advocacy of psychoptheraphy as the most rational type of treatment. The characterization of hypnotism, itself a hysterically induced condition, as an unsafe mode of treatment commends itself highly. The psychoneuroses throughout are illuminatingly handled and in accord with the best modern doctrines.

The author seems to have gone astray on his neuronic doctrines in separating acute anterior poliomyelitis and its closely related chronic stage of progressive muscular atrophy. It is difficult to see wherein the terminal motor neuron is not involved in both instances. Perhaps the character of the pathological process is different, but that does not interfere with the anatomical involvement.

Too much anatomy of the brain mars the second portion of the author's book. It is, we believe, better to leave the normal structures to text-books of anatomy. Otherwise the padding becomes too obvious. The anatomy might be given in outline in connection with a disease process, but *chacun à son goûte* is as indisputable in book writing as in any other intellectual pursuit.

The book as a whole is a forceful and useful volume. There are some abdominal illustrations in it, filling up many plate pages. We hope that they can be eleminated from a second edition, as they tend to impart a cheap and amateurish look to a really admirable text-book.

The American Year-Book of Medicine and Surgery for 1905. Volume—General Medicine. Edited by George M. Gould, A.M., M.D. W. B. Saunders & Company, New York, Philadelphia and London.

The American Year Book of Medicine for 1905 is a worthy addition to the already long list of editorial achievements of Dr. Gould. Having associated with him contributors of ability and authority, he has found it possible to glean from the mass of current medical literature all that is of real value and stands for scientific advancement, and consequently has been able to present to the profession a volume of the year's progress in concise form with authoritative comments.

This issue fully maintains the high standard set by the former editions and is a valuable book for those who desire a compendium of the year's work in digested form.

Pictorially it is not elaborate, though satisfactory.

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ORIGINAL ARTICLES.

BEGINNINGS OF THE PSYCHOSES.*

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"No scientific fact is better established than this: that the functions of mind depend upon processes going on within the cells of the cortical layer of the brain." The myriad cells of which the brain is composed are supplied with an enormous quantity of blood through vessels more numerous than are distributed to any other organ; they present phenomena of nutrition, which they share in common with the other cells of the body and with the body as a whole: they receive impressions through incoming strands of minute conducting threads from every one of the fundamental cells of which the various tissues and organs are built up, and send forth impulses which govern and regulate all the functions of the latter.[1] Nowhere in the realm of organized matter is there found a more intricate physical organization than in the arrangement of the constituent cells and fibers, or nutritive functions so active as in the cortical areas of man's highest and latest developed organ. We must regard them, therefore, as representing foci of chemical phenomena among the most complex in nature.

For its specific activities of "sensitiveness" and "conductivity" brain-cell depends upon a colloidal structure so unstable of constitution that it instantly responds to the slightest vibrations of light and sound waves and the chemical influences transmitted to it by way of the organs of special sensation. More than this, it permanently incorporates in its internal structure results of these influences, as evidenced by its facilitated readiness of response to subsequent impressions of like nature.

Impressions of sensory experiences thus remaining in nervous centers are manifested as phenomena of memory. In the imprints wrought into their organization by heredity we discern "vital potentialities," or "predispositions"; in those resulting from acquired experiences (habits) we study "functional dispositions." Both are intimately bound up, therefore, with their nutritive processes.[2] Differences of internal structure, due to modifications of body fluids, from which the cell structure is built up and continually renewed, necessarily result in disturbances of function; and these are manifested by different sensations produced in individual consciousness, or by different peripheral results of these centrally acting influences.

Variable degress of vitality exist—not only in different organisms and species of organisms, but also among the different cells and tissues of which individuals are composed. This difference of vitality may be due to congenital structural defect or to inherent peculiarity of elaborating and assimilating nutrient materials, with derangement of specific activities proportional to the nutritional defect. Equally with other organs the cells entering into the formation of man's highest organ exhibit different degrees of vitality, with consequent variation of their nutritive and specific properties. Any cause lowering the nutrition of the general system is apt to be first felt by such vulnerable cells, and any slight additional stress, whether from their own functional activity, or autogenous and endogenous poisons, may suffice to bring about a maladjustment of the body forces varying in severity with the degree of inherited or acquired vulnerability of the living substance of the cortical brain areas and the conducting paths.

In this controlling and regulative mechanism which thus welds the separate units of the body into a single whole we have represented the sum-total of the body's activities; all that characterizes man as an individual, physically, mentally and morally—(for it is in the highest associative relation of cortical cells that the moral traits have their origin)—and to it also must we look for the physical basis of consciousness.

We know that consciousness, with concomitant association in memory of the body's sensory experiences, suffers profound modification as a result of the various "accidents that touch the brain." We very commonly see entire abrogation of consciousness from traumatism to the brain mass, with accompanying impairment of subsidiary brain and body functions: from damage to its structure produced by causes acting from within, such as hemorrhage, thrombosis, neoplasms and gross organic disease of its blood vessels; from the chemical influence of anesthetic and narcotic agents, such as ether, chloroform and opium; from the sudden withdrawal of oxygen as in syncope; down through the less striking, but no less unmistakable involvement by poisons acting through longer periods of time: I refer to toxins of the acute infectious diseases and the poisons of alcohol and lead, gout, rheumatism, etc. All of these are known to exert a so-called selective influence upon nerve-cell structure and to be capable of producing disturbance among the body's sensory, vasomotor, secretory and motor functions; and, also, through a loss of the quality by which impressions of past sensations are retained, a corresponding defect of the higher associative functions, that is, the power of associating ideas.

* Read at a meeting of the Pittsburg Academy of Medicine, April 11, 1905.

In our quest for disturbing factors within brain-cell mechanism we need not resort, however, to these well-known agents of destructive alteration; for Hodge and others have satisfactorily demonstrated the existence of chemical and structural changes in nerve-cell as a result of its excessive functional activity. These are earliest manifested by alteration in the nucleus, which presides over the nutritive functions of the cell, with distinctly lessened capacity for transforming incoming impressions into outgoing impulses.

Cerebral cortical cells normally exert influence by which the functional balance of both the organs and the mental faculties are maintained, without any participation of consciousness in the process. When the normal adjustment is disturbed, however, incoming impressions not only fail of proper transformation into outgoing regulative impulses, but are unduly obtruded into consciousness. Whether the maladjustment be due to congenital defect, to structural or chemical alterations from poisons, or from diminution in the amount of their food-supply, it is produced by abnormality of these cortical "machines of associative memory"; and resultant modification of their sensitiveness and conductivity is made manifest by their altered mode of responding to their habitual stimuli.

The stimuli which influence this reaction mechanism are not only those immediately acting through special sense and bodily organs, but they include the stored-up impressions from previously experienced sensations—those entering from the external world, and from his bodily processes as well—together with the correlated and mutually influencing mental states. These exist as "tendencies" to outgoing impulses and are manifested by change in subjective feeling, or outwardly exhibited objective signs, as in facial expression, pallor, blushing, etc. The individual becomes conscious of himself as a personality separate and distinct from his fellows only through these stored-up and incoming impressions; they become his "point of contact" with the world in which he lives, and, in sum-total, they constitute all that is *realized* by him. Some of these ingredients of personality can be enumerated; those, for instance, which are constantly or more frequently reproduced in memory; that is, presented to consciousness oftener than others: the visual image of the body so far as it lies in the field of vision; sensations of touch, as the contact of clothing, temperature, the positions of members, the sound of the voice, together with the sensations connected with separate parts and functions; the regular recurring appetites—hunger, thirst, sex, and the cravings and desires which, consciously or unconsciously, are associated with them; the organism's interests in regulating and subordinating these instincts and desires, or in satisfying and providing for their further gratification in consonance with civil status and with established laws, customs and conventions. Certain beliefs, ideas and social interests and cares founded upon his physical needs thus become, in the course of man's development, essential memory-constituents of his personality. In this inventory are briefly itemized some of the stimuli which, derived from many sources, constantly influence the individual organism.

These ingredients of personality are susceptible of further analysis; and they have been painstakingly studied by investigators in many fields. They are not constant in any individual, but vary with the time of life, degree of culture, inherent tendencies and immediately influencing surroundings, including among these latter the state of vitality and general health with all that these terms imply. At any given time, therefore, the consciousness of self is merely an artificial separation of those constituents of memory which occur most frequently in our perceptions. The very essence of man's personality consists of this association in memory of mutually influencing bodily sensations and mental impressions, with cortical brain cell as their meeting place. To the specific activities of this cell must we look for the explanation of normal mental phenomena; and to modifications of these activities by the processes to which cortical cell is subjected for elucidation of abnormal mental phenomena. Whether we label these latter as neurasthenic, hysteric, hydrochrondiac or insane, it is to this point they must be traced if we are adequately to comprehend and interpret them.

A feeling of health and energy with tendency to outlet in normal and customary activities is indicative of equilibrium among the brain's nutritive processes. It has been truly said that "we are not so sensible of the most robust health as we are of the least sickness." In the interplay of the sensory ingredients of mind as they occur in vigorous health, therefore, "the brain should be as non-existent for consciousness as the stomach. But the nervous sufferer has data inaccessible to his healthy fellow, and is reminded of the psychophysical connection by a thousand distressing sensations" (Strong). With any disturbance of the normal equipoise, whether from emotion, or from modification of the molecular constituents of intracellular or extracellular fluids, there are obtruded into consciousness disordered sensations of some sort; these are connected with the bodily or with the mental processes, or both.

Since functional alterations and adjustments are continually occurring among the body processes—adjustments by which the incoming impressions are correlated and harmonized with retained imprints of former sensations and images—we find in proportion as they are gradually or suddenly brought about, or act upon an unduly sensitive or unstable reactive mechanism, a resultant variation among vasomotor, secretory, and motor processes. Familiar bodily accompaniments of the emotion may be used as illustrations of this: in the pallor of fear and the livid-

ity of anger—enduring but a moment and disappearing with the cause—are demonstrated the intimate association of subjective feelings with bodily functions. And we constantly find those we regard as normal shading off into degrees which must be deemed abnormal, as measured by their intensity or their duration. Take for instance the involvement, from sudden emotion, of salivary, renal, and dermal secretions; and the more gradually induced depression of all the functions as a result of grief and anxiety. Only less apparent are transitory lapses of the appetites, with their accompanying desires, from physical exhaustion or from intense emotions; disorders of motility of stomach and intestinal walls; temporary disorders of digestion from excess, deficit, or perversion of the various secretions concerned therein, with consequent fermentation or putrefaction within the digestive canal and the production of poisons which, in turn, produce pathologic changes in the blood and resultant alterations in nutrient fluids; malnutrition of nerve centers is thus brought about, with further disturbance of the mental functions. In disorder of the sensory, secretory, excretory, and circulatory functions of the skin—"that wonderful mosaic of many organs" and "mirror of the nervous system" (to which it is so closely related in embryologic origin)—we have multiplied evidence of the organic oneness of mind and body function. Through its meshwork of minute blood vessels which respond so promptly to emotional states, we are enabled to read the innermost emotions of shame, anger, and fear as unerringly as we do some of the gastric, enteric, and toxemic disorders which are turned over to the skin-sheet for presentation.[4] From vasomotor reactions so general and excessive as to bring about altered conditions of blood pressure resulting in syncope or (if disease of the blood vessels exists) in apoplexy; or in the petechial hemorrhages observed in certain hysterical states, we have occurrences of like significance though differing so widely in character and in degree.

In the bodily resonance and reverberation to mental states of longer duration we have protean manifestations of disordered cortical activity. They may be said to include all imaginable combinations of sensory, secretory, and vasomotor disturbances, influencing, together or separately, the vegetative, organic, and motor spheres. With the frequent repetition of such states we find a tendency to groupings of reactions—to the establishment of symptom-complexes involving vulnerable and overworked organs or systems. Or, we find because of the dissipation of the brain's energies through a single channel by its excessive cortical activity or intense and rapid alternating emotions, the involvement of many functions. Depending upon the line of least resistance in a given individual, resultant maladjustment is variously exhibited: it may be in mere hypersensitiveness to the normal bodily stimuli, or in diminished resistance to pain. Notable instances of hypersensitiveness to stimuli resulting from physiological function are to be observed in sensitive women during the menstrual period associated as it is with marked changes in the body's sensory, vasomotor, and chemical processes, not to mention its emotional and mental concomitants. Most marked are the perturbations occurring at the establishment of this function and throughout the evolutional and involutional processes of the generative organs, as well as in the profound physiological changes which accompany their highest functional activity in gestation and the puerperium. Very numerous are the sensory disturbances within the pelvis which must be regarded as the effect and not the cause of pathologic nerve states.

Because of the exhaustion of certain groups of brain cells, or of their lack, or impairment of their activity from any cause, there may be an inability to attend to its multiplicity of sensory experiences, and we find those not immediately essential to the organism's existence extruded from consciousness; various enesthesias and analgesias result with associated modifications of conscious desires, appetites, and emotions. With profound duration or greater intensity, habitually excessive, perverted, or abnormal reactions to the organism's innumerable sensory stimuli become greatly facilitated; with each repetition additional traces are left in the nervous centers as memories; these become organized, so that although the original cause or causes of the abnormal reactions may be removed and the sensory and psychic accompaniments effaced, their imprints remain as functional dispositions which tend subsequently to be called into existence with greater and greater facility, and, finally, with totally inadequate external cause. Whatever be the exciting circumstance calling for readjustment of the bodily forces, attendant sensory disturbances are thrust into consciousness. The hypersensitive individual accustomed to note slight changes and habitually to select certain kinds of sensations from among the many which influence him, pays special attention to new or unusual ones thus suddenly and vividly presented to his consciousness; and, by preference, he attends to these even when they are of little intensity.

In the normal individual no one class or set of sensations continuously holds first place; they become effaced by successive states of consciousness. But while the stream of consciousness constantly varies, its changes occur in accordance with definite laws; they are determined by bodily states, and are the resultant of the sum total of impressions (retained and incoming) which influence him at that particular instant. *What* the cortical cell deals with depends upon the experiences to which it has been—and is being—subjected; *how* it deals with or transforms these sensory experiences depends upon its anatomic perfection, chemical constitution, and previous habit, consequently upon the degree of perme-

ability of its conducting paths. Viewed by the light of the physico-chemical changes to which the colloidal materials are subjected we can better comprehend the variations and vagaries in the mechanism of transformation of its sensory materials into outgoing processes, and the influence of these changes upon cortical and perceptual processes; that is, in determining what sensations shall and what shall not occupy consciousness.

All mental development is conditioned upon the retention of sensory impressions in cortical cells. Our mental representations must—in part or in entirety—be regarded as the "echoes" or reflections of the world of sensations. These reflections are, under certain conditions, susceptible of study as "after-sensations"; and painstaking investigation of these phenomena by laboratory methods has thrown much light upon the mechanism not only of normal, but of abnormal mental states. Without further going into the results of psychological studies of "vestiges of sensation," "after-sensations," and "after images" I may here state that they are closely allied to memory — and imagination-images. Their chief interest from the clinical point of view lies in the fact that not only do sensations leave more or less lasting impressions capable of subsequent revivification in memory; and that normally these vary in character with the condition of peripheral sense organ and of cerebral cells; but also that vivid sensations from abnormal processes as of pain, together with the "internal" states which originally accompanied them, are capable of like revivication in memory with the production of all their outgoing consequences, mental as well as physical; and this may result from some slight peripheral or external cause or from centrally excited processes.

The importance and far-reaching consequences of centrally excited processes, which are conditioned by the quality of "memory" inherent in nerve-cell, can not be exaggerated; for to the influence of the stored-up sensory processes associated with the vegetative and organic functions —the "organic sensations" or "feelings"—and to "the inner nerve-action that converts the functions of the senses into mental life" do we trace much that is morbid in psychic function.

In the sensitive, vulnerable, and unstable organism the slightest influence which modifies, perverts or disorders peripheral processes becomes of important significance and should never be disregarded. It is the central (cortical) process, however, that we are prone to overlook; and it is the only one in any way explanatory of the difficult clinical problems which these cases present. Of etiological significance among the conditions influencing these central processes (physicochemical and sensory)—are those known to act upon the "colloidal machines" of the cortical areas in which sensations, images, ideas, emotions, and the bodily activities are coordinated and controlled. A single persistent or dominant idea may cause maladjustment by shutting out all other ideas which otherwise might come to consciousness to exert their controlling influence, but essential even for this to an inherent vulnerability (diminished activity) of the colloidal machines of associative memory—the cortical cells. General exhaustion from any cause so limits their associative activity, and influences directly affecting them, such as fatigue, from their excessive functional activity, grief, disappointment and anxiety; also narcotics, intoxicants, and the processes are so patent that even the uninitiated may read them. Where two or more of these causes meet in their influence upon the aggregation of cells entering into the formation of the "thought organ" injurious results become proportionately intensified.

The intimate relation of after-sensations which thus result from exhausted or toxic states of cortical cells, to sensation on the one hand and to memory and imagination on the other furnishes the underlying basis of many clinical conditions or entities. Take that widespread tendency, for example, which follows eczema, and all sorts of itching eruptions, to become worse at night "just as the cortex is beginning its automatic vagaries. Night-itching would appear to be a sort of dreaming on the part of the skin, an aimless flashing hither and thither of swollen rumors of half-imaginary irritations, when the stern control of cerebral inhibition is withdrawn."[5] I can give you no better illustration of the manner in which bodily sensations are subject to elaboration under all influences limiting, modifying, or interfering with the higher cortical activity. Of like nature are many of the subjective sensations originated through the special sense of hearing, sight, etc., elaboration of sounds produced in the middle or internal ear by disease of the mucous surfaces or other parts associated therewith, or of sounds due to the impaired action of the pharyngeal muscles resulting in some unusual symptom which is brooded upon. After-images evolved from subjective visual sensations are similarly explained. The last named have been exhaustively studied with results illuminating and further explaining the influence of the mental attitude in keeping up and in elaborating symptoms which have origin in real peripheral disturbances.

The special senses are more directly associated with (because essential to) man's mental life and development than are his "organic sensations." Any deviation therefore, from the normal functioning of the former, as of after-images, becomes more apparent, and the influence of this deviation upon the mental state more readily traced. But after-images are known to exist not only for all the senses but for the emotions too; that is for the bodily reactions which, in their sum total, constitute the emotions; and these after-images are all alike produced by processes going on within the neuroplasm of brain cells, however such products may be externalized.

Their development is normally instanced in "states in which we are conscious of no particular sensation but yet are not asleep; when we are alone, in the dark, in complete silence, and oblivious of our surroundings. The experiences (sensations from the past) which are marshaled before the mental eye, mental ear, taste, smell, or touch, are quite as real (not objective, however,) as sensations themselves and play quite as important a part in our lives" (Wilfred Lay). The thrills we feel as we think of any joyous emotion; the sensations of distress or of pain as we recall a disappointment or cause for worry, anger, grief, or fear; and conversely, the feelings of emotional depression and of irritability outgrowing from exhausted and abnormal physical states, are instances which illustrate how bodily sensations shade off into emotions. Thus closely associated in the normal processes of mind the intimate relation of after-sensations with sensation on the one hand and with memory and imagination on the other is even more readily demonstrable as a result of exhausted or toxic states of the organism. Further consideration of this phase would lead us far afield in psychological and psychopathological processes and away from the object of this paper. It is sufficient to state that the normal process, as we now know it, elucidates the abnormal into which it so imperceptibly merges. Whatever the source of the original sensations of discomfort or pain, the residua or vestiges remaining in the nerve-centers play a most important part in the production of the psychoses—are the ingredients, in fact, which, further elaborated by the cortical cells, consititute the various psychoses. It must be remembered that whether as upsurging sensations of pain, or merely as hypersensitiveness to normal, unpleasant or perverted sensations, their importance is derived from the mental attitude of the sufferer toward them. In the early stage the process of elaboration goes on subconsciously, or at least, is but dimly represented in consciousness. With their frequent recurrence they more and more usurp his attention. Whether they act but momentarily or continuously bombard his consciousness, this attitude is one of frequently directing his attention toward them, or of constantly brooding upon them, so that other sensations are excluded from consciousness. Thus aggrandized in importance, subjective sensations become further elaborated and there is an attempt on the part of the patient to explain them, with the development of the multiform hypochondriacal phases we so commonly encounter.

Bodily and special sense impressions are not the only ones attended to under conditions of exhaustion, toxemia, intoxication, and disease; for associated mental sensations (images, ideas, emotions, and desires) are even more habitually presented to consciousness. Indeed, it is the emotional concomitant that is oftenest recalled to memory; and this recollection may occur long after the original sensory excitant is forgotten. Equally with sensations these mental experiences leave their vestiges or residue; and they are subject to the laws of memory and of habit as are all other nervous processes. Moreover these varying emotions are often directly traceable to the bodily sensations, as the peevishness from exhaustion and bodily pain; their functional equivalent, irritability, betokens lessened power of associative memory: that is, of marshaling before the mind's eye and coördinating and controlling mental images, ideas, emotions and instincts. In place of irritability there may be dulness resulting from the lessened facility with which cortical cells transform their impressions into outgoing impulses; this retardation of the impulse gives rise to an increased "sense of effort" which may vary from normal fatigue and exhaustion to lack of ability to think clearly or with normal rapidity, with a corresponding sense of impotence and of utter helplessness either to resist or to do.

Because of the mind's inherent tendency to cognize and recognize its experiences, whether these are of bodily sensations of well or ill-being, or of its associated special sensations, images, ideas, and emotions, they become variously combined and rearranged as a result of mutually influencing body and brain habit. The faculty of memory inherent in nerve-cell makes it possible for these experiences to be evolved or reproduced independently of external stimuli, that is, from retained impressions; this is accomplished by the imaging faculty, and the now centrally acting stimuli are capable of producing peripheral phenomena of great variety.

The character and mode of evolution of morbid mental processes vary with the cause and with inherited or acquired vulnerabilities of given cortical areas. We know that much used, overworked, organs are easily thrown out of gear; especially is this true of overworked brain tracts.[6] When we consider how delicately poised is the vasomotor regulative mechanism, how the caliber of thin-walled and yielding cortical vessels alters with ever-varying activities and emotions; how these vessels respond to excessive demands from habitual overactivity of the brain cells which they supply, we are better able to understand why peculiarities of nerve-cell activity become as one with its nutritive processes; that is, literally bound up with them. The stress from modern modes of living calls for long-continued overdilatation of cortical vessels; this condition tends more and more to permanency; there is gradually lessening resiliency of their walls which, finally, are unable to recover their normal elasticity. Sluggishness of the blood-stream results and there is consequent engorgement of lymph spaces with poisoned food materials. Impairment of the bodily secretions inevitably follows; these now exert their baneful effects, not only upon nerve-cell but also upon the delicate lining of nutrient vessels. With these definite structural conditions accounting for habitually low nutritive

processes in brain cortex and other organs there is required but slight additional poisoning, whether by alcohol, by the toxins of acute disease, rheumatism, gout, or syphilis, to lay the pathological foundations for those forms of progressive mental deterioration and insanity known to accompany gross organic disease of brain tissues and blood-vessel walls.

In these random reflections regarding a subject so vast in its ramifications I have attempted to present some of the earliest clinical data with which we must deal in our estimation of developing disorders of the mind. We know that, however sudden the irruption into consciousness of an insane idea, however abrupt its manifestation in violent deed, there is an earlier period of incubation often long in duration. Available data of this latent period are found in the patient's sensations, images, and ideas, which mark the gradual deviation from normal function. Multiform in their subjective aspect, these hidden processes present objective signs in the emotional attitudes of the patient toward his spiritual, social, or physical welfare. The outgrowth of defect in anatomic endowment at birth, or of nutritional disturbances within the body or the nerve-cells from fatigue, stress, poisons, or gross organic disease, the mechanism of their further evolution into mental disorder must be studied by the light of laws governing the special sense organs, with their neural connections, and the perceptions and apperceptions associated and correlated in memory through the instrumentality of attention; their recollection and recombination under the influence of the imaging faculty, and their known tendency toward expression in action.

The materials which are turned into morbid mental traits are the same in kind as those which constitute normal human nature. Their transformation into abnormal processes results from the "productive (though morbid) action" of cortical cells. Only as we know these mental elements and the intricate details of their mechanism as they form themselves into new associations which, through habit, become "fixed," "set," or "organized," can we grasp the pattern of morbid mental-complexes into which they are woven, and intelligently attempt to modify and transform them into physiological processes.

In approaching the study of mind by way of its ingredients, by its manner of growth and development, and its method of coördinating, readjusting, and accommodating the ever-varying bodily sensations with previously experienced and remembered impressions, and of transmuting them either into the quiet orderliness of images, ideas, beliefs, and judgments; or into conduct as exhibited in well-ordered bodily and social activities, we find that in its normal and integrative functions, as well as in its abnormal and disintegrative phases—its disorder and disease—"'tis still a man with whom we have to do of whom the conditions are wonderfully corporeal" (Montaigne).

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GALVANISM AS A CURATIVE AGENT IN NERVOUS DISEASES: THE IMPORTANCE OF EQUIPMENT AND TECHNIC.[1]

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It is quite probable that both entertaining interest and educational enlightenment might result from a discussion of medical electricity along the lines of scientific and physiological interpretation. We are not yet, however, in a position, in this aspect of the subject, to do more than to reiterate old or hesitatingly advance new hypotheses, neither the old nor the new having any firmer foundation, in fact, than inductive plausibility.

Medical electricity is not yet a science. We do not know any more demonstrably or with any nearer approach to convincing accuracy than in the past, either what it is or what is its modus operandi. The scope and purpose of this paper is entirely apart from any such academic discussion. We can afford to wait with both propriety and profit until further research shall have replaced conjecture with fact. It is with the practically useful and beneficially active aspect of the subject that I shall deal. We do not know what it is or how it acts, but we do know something of what medical electricity does.

It is exclusively, too, from the standpoint of personal experience that I shall present the subject with a further restriction to a consideration of galvanism alone and in the single field of neurology. Other currents are useful in this field; faradism, the static current and quite probably the X-ray, but in much more limited degree and with far more of inconstancy in results.

Not all neurologists are in accord in estimating the value of galvanism in the treatment of nervous diseases; still less of harmonious unanimity is there as to its scope of remedial or even palliative application. By some it is esteemed as of but slight value and in an exceedingly limited field. By others it is held, with even less foundation in fact, as of widely general application and correlated curative effect. All neurologists of to-day are unanimous in according it some degree of usefulness, however limited. With such sponsors as Duchenne, Erb, Charcot, Gowers and many others, there can be no question of its legitimate place.

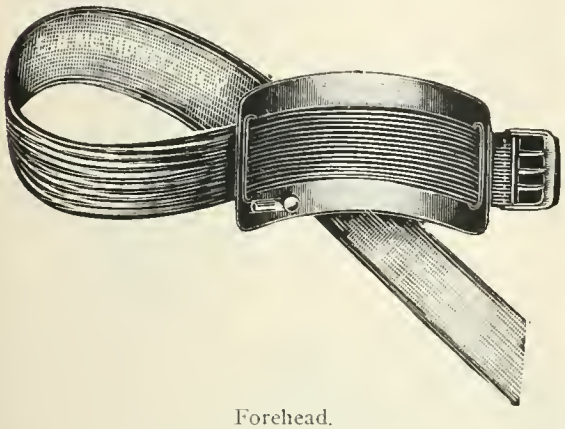
Personally I am positive in my conviction that it is an agent of demonstrable value, though by

[1] Read before New York County Medical Association, April 17, 1905.

no means indiscriminately applicable. On the contrary, its field is relatively limited, and it has no place as yet in the numerical majority of neurological cases, or, if a place at all, only as an aid in some collateral way to the end desired.

In organic central lesions with destruction of tissue, its employment, with any hope of remedial or directly curative results, constitutes an instance of the *reductio ad absurdum*. Hemiplegia, degenerative myelitis, necrotic softening from any cause, are, with rare exceptions, of this inappropriate group. Personally I have never seen any decided *propter hoc* benefit in tabes from this or any other current, although Erb recommends it as distinctly helpful in this affection. In actively inflammatory or actively irritative central diseases, as meningitis, acute myelitis or in brain tumors, it is positively and obviously contra-indicated. In the nuclear palsies, including poliomyelitis—although this disease is not usually so classified—I have never seen any specific benefit from its use, nor do I see on *a priori* grounds any rational basis for such belief.

Fig. 1.



Forehead.

It is, however, in the field of peripheral nerve diseases, including many of the neuroses, nearly all forms of neuritis, the tics, vasomotor and trophic affections, and the paresthesiæ of whatever cause, that galvanism occupies a position of positive and indispensable importance. To this group I would add, from experience, the fatigue psychoses, the headaches and cerebral conditions underlying the obsessions of neurasthenia, and of simple affective melancholia. This is really the field of selective usefulness for this agent; again and again I have seen the helmet or cincture headache of the neurasthenic, or the postcervical or occipital ache of the melancholiac, disappear as though by magic under its influence. In noting the effect on the tired headaches of neurasthenia, the simile or anology of recharging a run-down battery has often occurred to me as aptly suggestive in explaining the phenomenon of benefit or cure.

Even in this field of selection, however, galvanism is rarely, if ever, a specific. Let me further emphasize this statement: I know of no nervous affection for which electricity, or, for that matter, any other single agent is a specific. We have no specifics in neurology unless it be in tetanus or other similar diseases, which diseases are very questionably classified as neurological. Iodide of potassium will cure brain or cord syphilis very often, but the iodide is a specific for the syphilitic or metasyphilitic rather than the neurological factor in the case. Nervous function is too varied and multiple in manifestation to admit of a single measure or remedy for its restoration. Many measures may be cooperative and equally important necessities in securing a cure in a single case. Rest, environmental changes, control of morale, massage and passive exercises and assistance from drugs are among the more important and legitimate resources generally recognized. Add to these in appropriate cases galvanism and count it as of equal importance and value as an adjuvant and you have my personal estimate of its therapeutic status.

To get the best results, it is necessary to have a proper equipment and to know how to use it—a good workman and good tools are both essential to good work. Precision in dosage and a guiding principle in the method of application are just as vitally important in employing electricity as accuracy in the dosage or in the selection of appropriate media for solution or in an observance of chemical laws in drug administration. One does not guess at the dose of strychnine; one should not guess at the quantity of electricity to be given. You give large doses of quinine for one purpose and quinine in very small doses for an entirely different purpose. And yet to administer galvanism with intelligence and appropriateness and resultant benefit does not demand necessarily any special expert knowledge or elaborate equipment. A satisfactory and complete outfit, simple in construction and management, with ample current, equipped with all necessary accessories, including meter, rheostat and proper electrodes, can be obtained to-day and at a nominal cost. The accessories mentioned are absolutely essential: the meter for accurate dosage, the rheostat for perfect control

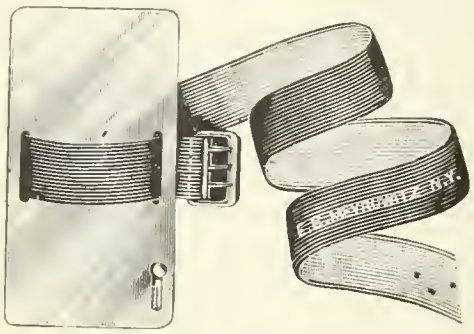
Fig. 2.

Neck.

of the current and proper electrodes to localize properly your current where needed.

It is remarkable that with an agent of acknowledged value for more than a century there should still prevail such haphazard methods and

Fig. 3.

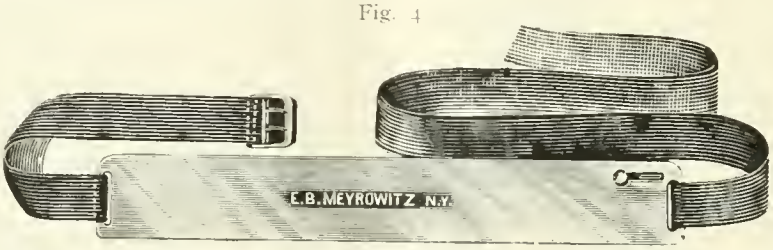


Spinal.

absolute lack of systematized technic in its use. Galvanism's stepsister, the X-ray, an infant by comparison, has been treated with far more dignified consideration: an elaborate technic and most highly specialized expertness are admittedly demanded in its employment, and yet there is far less positive evidence of important value in the records of achievement for this agent so far, whatever may be its future, as compared with galvanism. An old and familiar story to me is that of the patient who, when advised that galvanism is indicated, tells me he has used it with no benefit, that his physician had tried it or had told him to get a battery and use it himself. As well tell him to go home and operate on his own hernia or apply his own spinal brace. Inquiry revealed the fact, as a rule, that it was a faradic battery of very limited use in neurology and in many cases positively harmful and distinctly contra-indicated. If a galvanic battery, it was without meter or rheostat, leaving the patient to guess at the quantity by his sensations, an absolutely unreliable standard; and to the often harmful effects of interruptions and shock from lack of current control by the rheostat. Finally, as a crowning folly, in nineteen out of twenty instances, the electrodes furnished were those little 1 by 1 sponge-covered metal disks on the end of a stick, so familiar to you all. I know of no more farcical persistence of a palezoic relic than these little disks, and yet they are to-day the standard equipment distributed by nearly all manufacturers. This little disk has kept medical electricity, in one field at least, marking time for a hundred years. It has absolutely no place or useful purpose in your equipment; not only are they a physiological insult, they are an hygenic and an esthetic offense as well, collecting filth each time employed and becoming quickly offensive in odor and appearance. Nothing has been more effective in retarding the advancement and recognition of electrotherapeutics than the stupidity of manufacturers, although the negligence of medical men has been no inconsiderable factor.

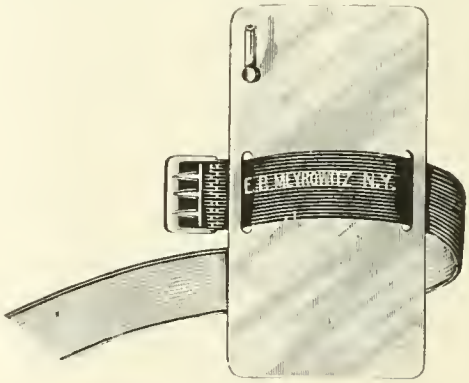
The set of electrodes which I show you represents very little of originality in conception. They are all essentially based upon the Erb electrode. Certain modifications and adaptations, however, have been evolved from experience which I believe to be of distinct practical value and importance. Briefly summarized, these modifications are as follows and for the following objects: The electrodes are made of pliant metal, permitting even adjustment to all surfaces, especially when covered. Instead of a permanent covering, I use clean towels, several times folded to a sufficient thickness, and thoroughly wet in hot water. Salt water is not necessary. The towel edge should overlap the metal to prevent burning or local concentration of the current. The electrodes are made as large as possible, in order to get a maximum of diffusion at the point of current contact, with a resulting minimum of discomfort as one object, and sometimes a maximum benefit from a

Fig. 4



Intercostal.

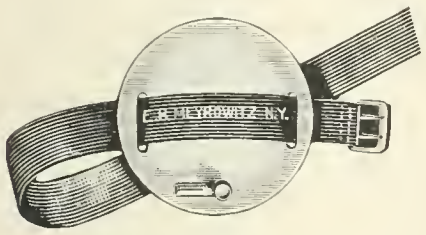
Fig. 5.



Footplate.

maximum amount of electricity for another. The smaller the electrodes the less the amount of current we can use, because of the irritant and often harmful concentration. With large electrodes also, the prolonged use of the current is easily possible. Seances of less than twenty minutes are the exception; an hour is often indicated as in old sciatica or sacrolumbar neuralgia. Most patients suffering from nervous diseases are "nervous," fidgety, restless. You must make them comfortable for the twenty minutes or the hour required. With this object, these electrodes are equipped with a strap attachment securing firm fixation, thereby insuring freedom from pain and shock from interruptions far more positively than if held by an

Fig. 6.



Hand.

attendant, whose hand, from fatigue or inattention, becomes unsteady. By this method the patient is free to change constrained and wearisome positions from time to time. He can cross his legs, put his feet on the table, handle his book or cigar, although it may be a sciatic or an ulnar or a facial nerve or a headache you are treating. Equally important is the state of mental relaxation from reassurance as to freedom from the fright and danger of shock from interruption. I have had the binding posts attached in the plane of the electrode instead of at right angles as usual, the latter making a lump which interferes with comfort. After use the electrodes are wiped dry, preventing corrosion. A set will last indefinitely.

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APPENDICITIS: MEDICAL AND SURGICAL.

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In presenting the subject of appendicitis I am not writing for such men as Morris, Deaver, Kelly, Price, Murphy, Ochsner or the Mayos, but from the standpoint of the average surgeon and general practitioner. Such men as those mentioned, with their skill, experience and facilities, can reduce their death-rate to a point which the average surgeon throughout the country cannot. So, in discussing this question, if the appendix in the common vernacular should inquire "Where am I at?" I would say between the surgeon and general practitioner in the deep blue sea of future investigation.

It has been but a short time since the fiat of the radical surgeon was, Operate as soon as a diagnosis is made—but the present tendency is to modify that edict to some extent. Another statement equally as radical is that appendicitis has no medical treatment. The leading surgeon that operates on one or two thousand cases in one or two years sees more of the severe cases than the mild, and so it is with the prominent general practitioner whose work is mostly consultation.

Hospital cases fall under the same class. The mild cases are the ones handled first hand by the general practitioner, not deeming it necessary to call in a surgeon or send the patient to the hospital. It is self-evident to any reasoning mind that a hurried operation within the first forty-eight hours of an attack with an ascending inflammation and infection, with imperfect home surroundings or with the annoyance and anxiety incidental to transference to a hospital, will have a higher death-rate than an interval operation deliberately planned and executed. This being true it is only necessary to demonstrate that a greater number can be safely carried to the interval period. Just what the death-rate is in first attacks of appendicitis operated upon by the average surgeon or treated medically by the average physician has not been settled. From my limited observation and experience I am fully convinced that first attacks of appendicitis judiciously and properly treated will give a greater per cent. of recoveries than can be secured by the average surgeon in operating as soon as a diagnosis is made.

Understand, I do not condemn operation during the first forty-eight hours, in fact advise such when the circumstances demand it, but I do condemn as unsound and unscientific the command to operate as soon as a diagnosis is made. The assertion that appendicitis is a surgical disease and has no medical treatment is productive of much harm. I am aware that this is a surgical age, and that the American people and surgeons have appendiphobia to such a degree that it is unpopular to say a word against the surgical fad of the day. As a further evidence of this surgical tendency, we note that a medical college in the midst of us has five or six professors to teach surgical subjects, and but one to teach the unimportant subject of General Medicine. In the March, 1905, issue of *Amer. Surg. and Gyn.* are articles by different men claiming appendicitis, pneumonia and typhoid fever as surgical diseases. The surgeon is an active worker, aggressive, progressive, and seeking new fields to conquer, while it seems the general practitioner is playing the Rip Van Winkle game.

I do not condemn surgery, as I do a little of it myself, but it should be utilized in a rational, scientific way, and not swayed by radicalism to the exclusion of remedial measures that will give equally good results. If the average surgeon throughout the country operates upon every case of appendicitis as soon as a diagnosis is made, he will have a death rate of 10 to 20 per cent. depend-

ing upon his skill and surroundings. Any ordinary practitioner should be able to carry out a judicious medical treatment with a much less death rate. The expert surgeon in this line of work can operate on all cases with a death-rate of 2 to 10 per cent. The interval operation with the expert should be about .5 of one per cent. If the average surgeon would limit his work to interval operation and those with severe symptoms within the first forty-eight hours, far more lives would be saved, and much useless surgery avoided.

Dennis, New York (*American Journal of Surgery and Gynecology*), states as follows: "Dr. Richardson reports 574 interval appendectomies with no deaths; the Drs. Mayo, 1,668 interval operations with two deaths. A. C. Bernays, St. Louis, states; 'Mortality in all surgical cases, 8.5 per cent; mortality in expectant treatment, 12 to 16 per cent.'" Dr. R. T. Morris, New York, reports mortality in last 1,000 cases of two per cent.

Dr. J. B. Murphy (*American Journal of the Medical Sciences*) states: "We will admit 80 per cent. of cases recover from attack; that 20 per cent. approximately of the cases either die in the first attack or have recurrences." Dr. Deaver reports a death-rate of two per cent. in surgical treatment of 1,000 cases.

Leube's Physical Diagnosis, p. 313: "The great majority of cases (statistics vary, being about 90 per cent.) result in spontaneous recovery."

Boas' Diseases of Intestines, p. 499, says: "Sahli, Reavers, Kleinwachter, Rotter, Curschmann, Aufrecht, and others, have brought forward a very impressive material to show the curative results of conservative treatment.

"Sahli collected the entire material of Swiss physicians, thus gathering 7,213 cases. Of these, 473 were operated upon with a mortality of 21 per cent.; 6,740 were treated conservatively with a mortality of 8.8 per cent. Relapses occurred in 20.8 per cent." He also quotes—medically—"Kleinwächter's mortality 7 per cent., Curschmann and Aufrecht 4 to 5 per cent. Rotter 8.9; Renvers only 3 per cent. Surgical statistics vary from 9.6 (Murphy) to 24 per cent. Richardson's average is about 15 per cent. (Later Murphy and Richardson report a lower mortality.) He believes mortality will be decreased by increased experience, early operation, etc., but a mortality of 5 to 8 per cent. will exist in appendicitis, no matter how timely and successfully the operation is performed (Rotler)." Under internal treatment at "St. Hedwig Hospital (Berlin), of 213 cases, Rotler gives death-rate at 8.9 per cent.: Urban Hospital, Berlin), 132 cases, with a mortality of 12 per cent. (Borchardt), but of the 16 that died about 14 were admitted with inoperable general peritonitis." Some investigators report 30 to 40 per cent. of post mortems give evidence of appendicitis during life.

Ochsner has taught us that severe cases can recover without operation if properly handled. His death rate of 2.2 per cent. in 1,000 cases has demonstrated that surgery is not always essential to recovery, even in cases of perforation or gangrene of the appendix. He also states that "all cases which are diagnosed reasonably early may be carried through any acute attack, no matter what its character may be."

Another evidence of the possibility of nature properly aided handling these cases is the present tendency of many surgeons to advise waiting if the operation is not done within the first forty-eight hours, or while the infection is practically confined to the appendix. This is certainly an admission that surgery is less successful than internal treatment at this stage of the disease, or that nature, after the second day, is better able to take care of the case than the surgeon.

In arriving at our conclusions we must remember that hospital cases are not a correct guide as to results and mortality, neither are those from a consulting surgeon, nor those of the general practitioner, whose work is principally consultation. The mild case, in nearly every instance, is handled by the physician without consultation, or being sent to a hospital; thus it is many mild cases recover without operation.

From my own observation, which I hope is based upon a reasonable amount of discrimination and judgment, I would say that the general practitioner whose death-rate is above two to five per cent. in appendicitis has something wrong in his treatment of these cases. All cases of appendicitis cannot be treated alike any more than all cases of any other disease. Discrimination and judgment must be used in each case. The physician who produces active catharsis in severe cases is as dangerous or more so than the one who gives opiates and coal-tar derivatives in large does in the first stages. Mild catharsis in properly selected cases in the early stage has its benefits. Opiates in small doses, just sufficient to relieve severe pain or quiet peristalsis after a diagnosis is made, used per rectum or hypodermically, have their advantages in selected cases. Ochsner precludes all food and medicines by mouth: if vomiting is severe, he uses stomach lavage and nourishes patient by rectum, giving predigested foods in small amounts with salt solutions. Large amounts thrown into rectum excite peristalsis, which is to be avoided, especially in severe cases.

Cheyene and Burghard[1] prohibit food by mouth when vomiting is present and allow no solid food until temperature remains normal for several days. They advise salol or napthaline; they condemn purgatives, allow enemata with caution in some cases to move bowels, object to antipyretics, allow small doses of opiates guardedly in some cases, just sufficient to relieve pain, and state that belladonna and quinine will frequently relieve the pain. All agree to the use of hot or cold applications for the relief of pain.

1 Surgical Treatment, Vol. 6.

As a general line for internal treatment we would suggest the following as worthy of confidence and productive of good results, which will materially lessen the mortality in these cases.

℞ Carbolic acid ..... } aa 5ss
Papoid ..... }
Glycerin ..... } aa 5i
Listerin ..... }
Ess. Pepsin ..... g. s. 5iv

Mix. Sig. One teasponful two to four hours.

Alternate with salol-salacin carb. guiaiacol aa gr.iii, adding ⅛ to ¼ gr. of calomel.

For a mild case the above acts well, tends to disinfect the alimentary tract, lessens gas formation, quiets the stomach, fortifies nature's resisting powers and aids digestion.

In such a case salines or oil may be given or bowels flushed out in order to remove offending toxic material within first twenty-four hours. If the case is more severe, but without vomiting, and bowels not obstinate, the liquid and capsules may be continued, nourishing patient per rectum. If vomiting with severe symptoms prohibits everything by mouth, wash out stomach and give nourishment by the rectum in small quantities. Keep patient quiet in bed in every case and require use of bedpan. Opiates should be avoided in all cases as much as possible, especially until the question of operation is decided, and then given only in sufficient quantity to relieve pain and quiet peristalsis. The coal-tar derivatives are more treacherous in obscuring symptoms and depressing the patient and should not be used. No doubt our surgical friend is ready to say you cannot disinfect the alimentary canal or appendix by internal antiseptics, yet he will scrub his hands with brush, soap and antiseptics for half an hour and not render them sterile, neither can he completely sterilize the field of operation or abscess cavity, and yet he would not fail to use such means. Is not an alimentary canal distended with gas, filled with decomposing material, loaded with germs and toxins, a menace to the patient and more likely to produce unfavorable results and convert a mild into a severe form of infection?

If we cannot disinfect the alimentary canal, destroy the germs or neutralize the toxins, we can partially do so and aid nature in conserving her forces that she may be the better able to build up barriers to the invasion of the infection. The prime object in these cases should be to disinfect so far as possible the alimentary canal, remove toxic material from same when it can be done safely and early, later quieting peristalsis, avoiding drastic cathartics, depressing vitality or obscuring symptoms by opiates or coal-tar derivatives, and sustain the patient in manner least likely to do harm.

In conclusion, let me restate my position:

1. The average surgeon will save more lives by operating only on the severe cases of appendicitis within the first forty-eight hours and those that suddenly grow worse after a few days of improvement; doing the interval operation on all that do not completely recover from first attack and in relapsing cases.

2. That internal treatment properly conducted should have a death-rate of not over two to five per cent.

3. That the death-rate can be reduced nearest to zero by the average surgeon doing the interval operation on those that do not fully recover or have relapses and operating on the severe cases within the first twenty-four to forty-eight hours and those that suddenly grow worse after a few days of improvement, leaving the remainder of the cases to judicious medical treatment. There is also a field for medical treatment in many cases after appendix has been removed in correcting the original cause of appendicitis or looking after existing complications. The surgeon should not dogmatically assert that appendicitis has no medical treatment, nor decry or exclude judicious medical treatment in these cases; neither should the general practitioner exclude the surgeon, but each should assist the other.

AN ATTEMPT TO ADAPT FOR CLINICAL PURPOSES, THE TESTS FOR ELECTRIC CONDUCTIVITY OF URINE.

BY G. KOLISCHER, M.D.
AND
L. E. SCHMIDT, M.D.,
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The development of every branch of modern surgery is marked by an endeavor to outline diagnosis, indications and prognosis as definitely and completely as possible, before undertaking the operation; so that, the result may not be marred by the shortcomings of an impromptu decision, during the interference or that the result might be simply left to good chance.

This becomes especially important if we have to deal with organs whose secretory functions are of vital importance. For a good many years the diagnostic methods have tried to keep abreast of the rather rapid development of renal surgery. There was in particular one point which concentrated the most intense attention on itself, that is, the question of the functional capacity of either kidney. In its extreme, this question will read: How are we going to determine previous to the operation whether one kidney will be sufficient to attend to the necessary eliminative process after its mate is removed.

The first preliminary problem was to collect the urine separately from either kidney. This question was solved by the introduction of the segregator and the ureteral catheter into our diagnostic armamentarium.

As to concluding from the examination of this separately collected urine upon the functional capacity of the respective kidney, it was first thought that determining the amount of urea would allow of a satisfactory decision as to the reliability of the kidney. This was very soon

refuted; and it was shown that if a test in such a direction was admissible at all, it necessarily ought to be the determination of the total amount of the solids eliminated during a certain period of time, or to express it in up-to-date language; we have to try to determine the molecular concentration of the specimen. Cryoscopy was received with the greatest enthusiasm as the method that should give infallible results in this direction; but controlling experiments soon proved that the reliability of this method was overrated, then this method was more elaborated by comparing the cryoscopy of the urine with the cryoscopic results in blood examinations; the theory was that in all cases in which both kidneys are considerably diseased, the consequence must be a decided increase of solids contained in the blood, which must lead to pronounced deviation of the freezing-point. But it was shown that cryoscopic results are not only influenced by the mistakes of art that are very likely to occur; but also by conditions under which the patient lived previous to the examination, as exercise, nourishment and so on. It furthermore was shown that a healthy kidney temporarily may be disabled to a certain extent on account of toxin brought into circulation by its diseased mate. In this way a cryoscopical examination carried out in this particular period will lead to misjudging a practically normal kidney. The most adverse and decisive criticism of the reliability of cryoscopical results was offered by Rovsing and Sockman. Without reciting all the details of the argument (we refer to their publications), we want to mention one very important objection that Rovsing makes. He says, that one of the weakest points in the recommendation of this method is that its advocates, a priori, accepted their theory as being beyond doubt, consequently they never had a chance of testing it in the converse, that is, they never extirpated a kidney if their cryoscopic results determined the other kidney as being insufficient; but Rovsing did and did it successfully.

Another attempt of determining the functional capacity of the kidneys was made by bringing certain stains into the circulation and watching their appearance in the urine. It was thought that the time that elapses between the administration of the stain and its appearance in the urine and the intensity of this staining would furnish valuable information for determining the functional capacity of the organ. But all this was refuted by Albarran, Barnard, Widal, and Vaquez. And our personal experience coincides with theirs.

Intramuscular injections of indigo-carmine did not help in improving the results in this direction.

Casper and Richter introduced the phloridzin test and claimed that it was absolutely reliable. Rovsing demonstrated in his publication that this method is also unreliable, that Casper never subjected it to the converse tests mentioned above and furthermore that the phloridzin test cannot be considered free from danger as it demonstrated by one of his own observations and by a report coming from Pielicke.

Finally the test of the electric conductivity of the urine was introduced in order to determine the functional capacity of the kidneys. This latter method is based on the experience that a normally functionating kidney will furnish a urine of higher electric resistance than would a kidney that is diseased. That this method also is not reliable, becomes apparent from the following considerations: We found that in normally individuals, normal kidneys at different times would furnish specimens of varying electric conductivity and that this variation occupied rather wide limits; we found furthermore that two normal kidneys in the same normal individual might furnish specimens of different electric conductivity, although both specimens were collected at the same time. We furthermore observe that one kidney might temporarily be impaired in its function by the presence of an infectious focus in the other kidney, that during this time the electric conductivity of the urine produced by it will be relatively high and that it will sink to a low level after the inflammatory conditions in the other are removed from the system.

In summing up, it may be said that all of the methods so far described meet with the following objections: They are all based upon the assumption that there is a general standard that represents the normal function of the kidney, that any deviation from this accepted standard indicates abnormal condition in the organ and that the degree of this deviation is in proportion with the degree of pathology. But there is not such a general valid standard. Second, none of these methods furnish a possibility of discriminating between a permanently diseased and disabled kidney and a healthy kidney that only temporarily is impaired in its function by the influence of its diseased mate.

We therefore tried to construct a method which is independent of the fallacious assumption of a general standard and which will permit the important discrimination between a permanently diseased kidney and a normal kidney only temporarily reduced in its elimination. We argued that the best way to test an organ would be to test its reaction and resistance toward the extraneous influences; we therefore endeavored to find out whether running a stain through the kidney might not influence the functional capacity of a normal and an abnormal kidney in a different way. As stain we selected indigo-carmine, and as method of testing we selected the test for electric conductivity on account of its extreme sensibility. We outlined the order of the experiments in the following manner: First, it was necessary to find out in what way, if at all, in normal kidnys, the passage of a stain would influence the electric conductivity of the urine produced. Second, it was necessary to find

out whether it would be possible to classify diseased kidneys according to the surgical question —"Can one kidney be relied upon to attend to the necessary elimination after its mate is removed?" The collection of the specimens before and after staining has to be done inside of such a short period of time that the general condition of the individual to be examined remains the same during either collection. In this way, if the expression is permitted, we made each kidney a standard unto itself. In order to get the basis for classifying the kidneys in a surgical sense, we discriminated between diseased kidneys that had produced heart and general symptoms and those that so far had not produced such symptoms. The first class, we considered as still safe in a surgical sense; while the latter were looked upon a absolutely unreliable. The results of our experiments can be summed up as follows:

After the stain appears in their secretion normal kidneys will produce urine of slightly decreased electric conductivity as compared with the conductivity of the specimen collected before the stain was administered. This decrease of conductivity, however, will never exceed nine international ohms. Even if the specimens collected from either kidney at the same time, show a difference in the electric conductivity before the stain was adminstered, the decrease of the electric conductivity after staining will be exactly the same in either specimen.

Diseased kidneys that according to the above given criterion are considered as still safe, will show in the urine collected after the stain appeared in the urine, a decided increase of electric conductivity compared with the specimen collected before administering the stain. This increase, however, will never exceed twenty international ohms.

Kidneys giving a difference of more than twenty international ohms have to be considered as entirely unsafe in a surgical sense.

A normal kidney temporarily impaired in its eliminating power by the presence of infectious foci in its mate shows the following phenomena: The specimen collected previous to the administration of the stain shows a high electric conductivity; but the decrease of electric conductivity after the adminstered stain appears in the urine never exceeds nine international ohms. Shortly after the infectious foci are eliminated from the other kidney by appropriate surgical interference, the electric conductivity of the urine furnished by the normal kidney will drop to a lower level and stay there; and again, the difference before and after stain will not exceed nine international ohms.

That this test may be considered a functional one seems to be proven by the fact that if we add indigo-carmine to a specimen in vitro there will be only a very slight change in the conductivity, a slight decrease which will never exceed two international ohms, even if so much indigo-carmine is added that the staining is by far more intense than in any case in which the stain colored the urine by passing through the kidneys.

STRICTURE OF THE URETHRA: PRELIMINARY NOTE ON A TUNNELED AND GROOVED SOUND AND A TUNNELED AND GROOVED CATHETER FOR DILATATION.

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Without entering into the merits or demerits of dilatation of organic stricture of the urethra as a mode of treatment, more than to say that the present tendency is directly in favor of it, it seems desirable to call attention to a sound which the writer has had in use in dispensary and private practice with the greatest possible success, for the past two and a half years. Research in the library of the Academy of Medicine and among the instrument makers has failed to reveal a sound which embodies all the features of the one to be described. Originality, however, is of far less importance than efficiency and convenience. These have certainly been reached in a most satisfactory manner, if the experience of the writer in genito-urinary work at the Outpatient Departments of the New York and Hudson Street hospitals as well as in private, is a criterion.

The features of the sound are the following, as shown in the outline drawing (Fig. 1):

1. The *curve* of the sound is of the same radius as the standard urethral sound, but one inch shorter. This decrease in length has been compensated for by an increase of one inch in the length of the shank. The object and advantage of the short curve lie in the fact that there is very much less leverage upon the face of a stricture in a short curve than in a long curve, thus the danger of injuring the filiform and of making false passages in the urethra is greatly decreased.

2. The *taper* of the curve is uniform from its base to its tip and regularly includes six sizes from No. 12 F. upward. The smallest point of the instrument is made 6 F. for the reason that this is the size of the Maisonneuve instrument. If a stricture is so tight that a 6 F. instrument cannot be engaged therein, other forms of treatment had best be adopted in the majority of cases. The small sizes, therefore, below 12 F. are uniformly at the tip No. 6 F. and regularly taper upward as follows: Two sizes for 8 F., three sizes for 9 F., four sizes for 10 F. and five sizes for 11 F. The uniformity of the taper has the object of rendering the dilatation much more secure on the following grounds: The middle of the curve of the 21 F. sound, for example, is 18 F., while the sizes 19 and 20 F. occur at equal distances between the middle of the curve and the full size of the shank. If, therefore, a No. 20 F. sound has already been passed through the stricture, the beak of a 21 F. sound will be almost entirely through the same stricture before the

dilating begins. The safety of this plan is obvious and becomes much more important when for any reason the dilating is being done more rapidly than one size at a time.

3. The *tunnel* of the sound is one third larger in diameter than the diameter of a small filiform and is five-eighths of an inch long. These dimensions are uniform throughout the set of sounds, thus securing entire uniformity of action and correcting the mistake in the standard tunneled sound by which the tunnels in the upper sizes are so large as to permit an inconvenient amount of play over the filiform. The length of the tunnel secures the sounds from twisting, buckling, breaking or cutting the filiforms, accidents which are not infrequent in the standard instrument. The length, however, is not sufficient to cause binding of the sound upon the filiform, provided ordinary skill is employed.

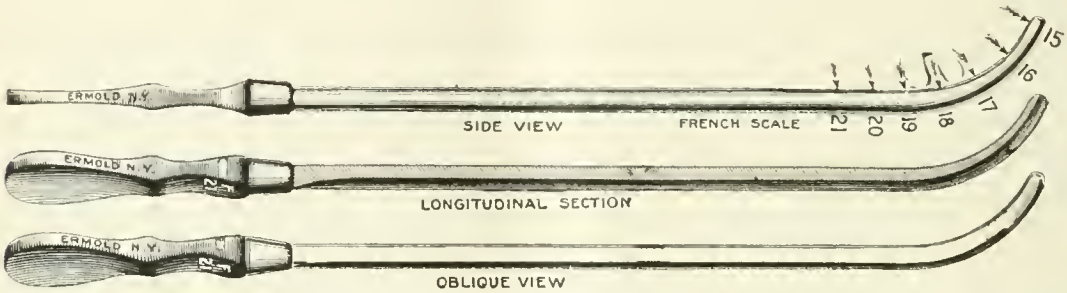
4. The *groove* of the sound passes along the shank three quarters of the length thereof, thus insuring ease of testing the freedom of the filiform. The grooves, like the tunnels, are also of the same size and length throughout the set. There is no reason whatever for increasing the width and depth thereof as the size of the sounds advances, thus the inconvenient dipping of the mucous membrane into a wide groove in a large sound is largely corrected and consequent pain to the patient avoided.

5. The tunneled and grooved silver *catheter* alluded to in the title are designed in the same manner, namely: With a short curve of uniform taper of six sizes, a shank one inch longer than the standard, tunnels of uniform diameter, five-eighths of an inch long, and grooves of uniform length, depth and width throughout the series.

6. The *set* which the author has employed consists of a 6 F., 12 F. and 18 F., tunneled and grooved catheter and sounds of all numbers from 8 to 20 F., both inclusive, also 22 and 24 F. The ordinary practitioner can do perfectly good work with catheters 6 and 12 F. and the even numbered sounds from 8 to 20 F., both inclusive. Only the specialist who is certain to encounter difficult cases frequently, needs every size of sound.

7. The *technic* of employing these instruments is as follows: After the filiform has been inserted in the usual manner, the 6 F. catheter is passed over the filiform, the bladder, if distended, is partially evacuated through the silver catheter or, if empty, is moderately filled with any mild antiseptic solution, such as boric acid, permanganate of potash, Thiersch or silver nitrate solution. The catheter is then removed, leaving the filiform in situ, and the sounds are taken in order, beginning with 8 F., and gently passed over the filiform through the stricture until that size is reached which the patient states to be moderately painful.

The writer finds that as a rule most strictures may be thus dilated to about 10 F. with very little inconvenience to the patient. The sound is then left in situ for ten or fifteen minutes in order to get the full benefit of the dilatation. After this the filiform and sound are removed and the patient is allowed to evacuate the contents of his bladder. If the contents of the bladder be urine, as in cases of distention, the sound is removed and the filiform is left in place, and the silver catheter is then again passed and the bladder carefully washed with rather hot antiseptic fluid, some of which is left in the bladder to prevent bleeding, such as sometimes occurs when an overdistended bladder is emptied. After four or five days the patient returns for the passing of larger sounds.



The side view shows the sizes of the curve from 15 F. at the tip to 21 F. at the shank; 18 F. is at the midpoint of the curve. The longitudinal section shows the relation of the tunnel and groove to each other. The oblique view foreshortens the curve and shows the roof of the tunnel, making the first five-eighths inches conical.

Usually in from four to six weeks dilatation is carried to the point where a filiform becomes unnecessary. A very few strictures are so tortuous and deeply-seated that tunneled and grooved sounds 22 and 24 F. should be passed over a filiform before use of the latter is abandoned. The writer has seen one such case in about three years of dispensary work.

This preliminary note is published with the hope that an instrument which has been so very serviceable in the hands of the writer for a long time will prove equally so in the hands of others doing genito-urinary work.

Acknowledgment is hereby made of the obligations conferred by the kindness and interest of the George Ermold Company in making these instruments.

CYSTIC KIDNEY AND LIVER.

BY HERMAN A. REQUE, A.B.,
OF CHICAGO, ILL.

(Continued from Page 214.)

The histological findings are as follows:

The lung shows the findings incident to edema and congestion, also small areas of infiltration with round cells, which are partly polymorphonuclear. The heart muscle, spleen, lymph glands and suprarenal bodies show no important changes. The liver was studied in sections taken from seven different places. In several of the sections the liver tissue appears fairly normal; in others are extensive necrotic areas containing cellular detritus, polymorphonuclear leucocytes, extravasated blood, etc. These necrotic areas are surrounded by dense round-cell infiltrations. Hyperemia, fatty changes, compressions and necrosis of liver cells, and other changes are noted. The characteristic features, however, are (1) cysts; (2) an excessive number of bile-ducts; (3) an excessive amount of fibrous tissue. These features are very unequally distributed, some sections containing scarcely any such abnormalities, while in others practically no normal tissue is found. With the exception of the largest the cysts are quite uniformly lined by a cuboidal or somewhat flattened epithelium. Where the cysts are surrounded by necrotic tissue, such as has been described, the cyst-walls are also partially disintegrated and cellular débris, blood-cells, fibrin, polymorphonuclear leucocytes, etc., are found in the cyst contents; otherwise the cysts generally contain no formed elements. The fibrous tissue is partly interlobular, but occurs also as larger masses containing cysts of various sizes, very numerous bile ducts, and here and there small foci of liver parenchyma. The excess of bile-ducts seems to be coordinate with the excess of fibrous tissue. Many of the small ducts show no lumen. Some of the ducts show several layers of epithelial cells and a few have some colloid-like material in the center of the lumen. Many of the ducts show cyst-like dilatations. There seems to be no reasonable doubt that the cysts are developed from abnormally proliferating bile-ducts; they have the same sort of epithelial lining.

The kidneys were studied in sections cut from six different places. There is considerable evidence of inflammatory processes both old and recent. Areas of round-cell infiltration, congestion, hemorrhage, and connective tissue proliferation are found; also some polymorphonuclear leucocytes; in one section a large thrombus. A great deal of sclerotic fibrous tissue is present everywhere, especially in the medulla and in the form of thick bands around the glomeruli, tubules, and cysts. The walls of the blood vessels are thickened. The glomeruli show marked changes. Some are greatly hypertrophied, others show some dilatation of Bowman's capsule, and a great many show sclerotic changes, often appearing simply as circular hyaline areas, imbedded in dense fibrous tissue or compressed between the walls of the cysts. A few appear normal.

The convoluted tubules are likewise often surrounded by dense fibrous tissue and are much compressed and distorted; but in places are small groups of convoluted tubules with no increase of interstitial tissue between them; these, however, show some degeneration of the epithelium and are considerably dilated.

A quite different appearance is presented by the straight tubules and a few of the convoluted tubules, namely a very extensive proliferation of the tubular epithelium. This is a characteristic feature and presents a variety of appearances. In some areas nearly all the tubules are completely filled with solid masses of epithelial cells and have the appearance of cords and nests of cells surrounded by fibrous tissue. These cell-masses are often much larger in diameter than any normal tubules and often have a very irregular contour with processes of cells extending into the surrounding tissue. Some tubules are lined by several layers of epithelial cells and processes of such cells partly filling the lumen. In some cases the tubules are partly filled with cells, the rest of the lumen being occupied by a homogeneous or somewhat concentrically laminated reddish or bluish-red material resembling colloid; this material seems to be a degeneration product of the epithelium and is also found in some of the smaller cysts, either in diffuse masses or as small rounded bodies like those in the tubules. The cells of the proliferating epithelium stain deeply and the nuclei are often polygonal. In numerous instances dilated tubules and cyst-like spaces contain a single layer of epithelium which is thrown into several folds so as to fill the lumen. In the dense fibrous tissue near the pelvis are numerous very narrow or distorted tubules which, however, show the same signs of proliferative activity. The lining of the pelvis seems to consist of a thick wall of sclerotic fibrous tissue.

Of the cysts the largest ones have no definite epithelial lining; the smaller ones are lined by a somewhat flattened epithelium generally of a single layer of cells. They are generally surrounded by dense, fibrous walls, in which may be found flattened glomeruli and narrow tubules without any lumen. The cyst-contents are variable. Some contain a finely granular material without any formed elements. In others we find blood-cells, polymorphonuclear leucocytes, cell-detritus of various kinds, and the above-mentioned colloid material. In rare instances short, papillary processes are seen extending into the cysts. These processes are generally covered by several layers of epithelial cells; they are found chiefly in the smaller cysts, and in these cases the whole or a part of the cyst-wall may be lined by several layers of epithelial cells, and there may be shreds of epithelium and colloid material in the cyst-contents. Such cysts are found chiefly

in the medulla. In the cortex are found a few cysts without any definite capsules, but surrounded by fairly normal renal tissue; these cysts may be described as irregular spaces having an imperfect lining of flattened cells; they may possibly represent dilated convoluted tubules or glomerular capsules. The fluid in some of the large cysts was examined chemically. It was dark red from admixture with blood. Specific gravity, 1.017. Reaction, alkaline. Albumin very abundant. Urea .22 per cent. by the Doremus method. In the sediment which mainly consists of red cells, a few leucocytes, elongated epithelial cells, and cholesterin crystals were found.

The pancreas appears to be normal, as far as the parenchyma is concerned, except for a few small groups of acini in which the cells are greatly swollen and the nuclei unstained. In the interlobular connective tissue is seen, in a few places, a peculiar development of the ducts. In part there is a great number of very small ducts; in part there are cyst-like spaces which presumably represent enlarged ducts. Some of these spaces are large enough to be seen by the naked eye; one of them measures about 3 x 1 mm. These spaces are partly lined by a high columnar epithelium, which is thrown into numerous folds so as completely to fill the interior of the spaces and also forms single-layered outgrowths of cells extending into the surrounding connective tissue. Only one small block of pancreatic tissue was preserved for examination, and it would perhaps be rather incautious to draw any definite conclusions from so incomplete a study of the organ. Nevertheless, there does seem clearly to be present an abnormal proliferative activity of the epithelium of the ducts somewhat analogous to what has been described in the liver and kidney. Pancreatic cysts have been described as occurring in connection with cystic kidney, and it is possible that they might be formed in an advanced stage of such an epithelial proliferation as is present in this case. Retention cysts might be formed through an occlusion of the ducts by the proliferation of epithelium within them, or the mass of proliferated epithelium and its degeneration products might cause cystic dilatation of the ducts.

Case II.—Miss M. V., aged nineteen years, died at the Cook Co. Hospital in August, 1902. The clinical diagnosis was typhoid hemorrhage and suspected tumor of the left kidney. The history is very meager. The young woman had the "diseases of childhood." She menstruated at sixteen, thereafter very irregularly, at one time ceasing for six months. At time of admission a hard, resistant mass, which was not tender on pressure, was palpable in the left iliac region. She was a rather small woman, but fairly well nourished.

Autopsy was held by Dr. L. M. Loeb and revealed the usual changes of typhoid fever and, in addition, bilateral cystic kidney, bilateral ureteral dilatation, distended bladder with small urethral orifice, and arteriosclerosis. The necropsy record gives the following description of the kidneys:

"The left kidney weighs 750 gms. and measures 19 x 9 x 7 cm. Its capsule strips with difficulty, leaving a surface composed of pea to walnut-sized cysts and islands of kidney tissue. On section the organ is found full of these same cysts. In the upper pole is a soft, pulpy area, 1½ cm. in diameter, which is encapsulated by a membrane. The cysts on section are found to contain a thin fluid or a yellowish, semi-solid substance. The right kidney weighs 640 gms., measures 16 x 8 x 7 cm. and presents the same condition as the left."

"The ureters are distended to the size of a lead pencil."

To the description of the kidneys may be added that all the customary markings are obliterated, there is no distinction between cortex and medulla, the pelvis is encroached upon by cysts, the partitions between many of the cysts are thin as tissue paper, often two or more cysts are only partially separated by remnants of walls, and the specimen may well be regarded as a typical example of total cystic degeneration.

The histological examination of the organs showed the usual changes of typhoid fever. The kidneys were not submitted to any special study at that time. The present histological study reveals the following:

Sections taken from four different parts of the kidneys show only slight evidence of any recent inflammation. One section contains an abscess about .5 cm. in diameter. There are also a few small areas of round-cell infiltration, considerable congestion and circumscribed areas of hemorrhage. In the cortex there are islands of fairly normal renal tissue, but the convoluted tubules generally show some degeneration of the epithelium, and there is an excess of fibrous tissue. In the medulla scarcely any normal tissue can be found, but nearly everywhere a great deal of connective tissue with large, oval nuclei, presenting often an appearance as if all the specific tissues had been reduced to a mass of indifferent, "structureless" tissue. There is also in the medulla, particularly in the region bordering on the pelvis, a great deal of more or less sclerotic tissue and a small amount of adipose tissue.

Of the glomeruli many appear normal. Many are greatly hypertrophied. Others have dilated capsule spaces, the glomeruli themselves in these cases often presenting a shrunken appearance. Some which are nearer the medulla have very irregular shapes, no definite capsules, and in some instances can scarcely be distinguished from the mass of embryonal tissue which surrounds them. Marked sclerotic changes in the glomeruli are not so frequent as in Case I. The tubules show essentially the same changes as in Case I: consider-

erable dilatation of the convoluted tubules; a striking epithelial proliferation, especially in the straight tubules, with formation of solid processes of epithelium within the tubules or extending into the interstitial tissue; compact masses of epithelium, some of which show a central degeneration suggestive of beginning cyst-formation; in the region of the papillæ mainly very narrow, or compressed and distorted, tubules, which, however, also show evidence of epithelial proliferation.

The cysts resemble those in Case I. The fibrous bands surrounding them are often very thick, and in these bands may be found a great many very slender tubules, generally with a very small, if any, lumen; these tubules often run parallel with the cyst-wall. Some larger, distorted tubules and a few flattened glomeruli are also found in the intercystic tissue; occasionally some normal renal tissue. In only one instance was anything resembling a glomerulus found within a cyst.

The two cases described are, I think, practically identical as far as the kidneys are concerned, or at least similar enough to be explained on a common basis. In reviewing the findings and seeking the primary cause of the cystic degeneration we have to consider chiefly the following possibilities: (1) Both cases show evidences of old (and recent) inflammatory processes, resulting in the production of a great excess of interstitial tissue and sclerotic degeneration, in the kidneys and in Case I also in the liver. These changes may have obstructed the excretory apparatus so as to produce retention cysts. The epithelial proliferation might then be regarded mainly as a secondary effort at regeneration or repair. (2) The epithelial proliferation may be regarded as primary and may then have produced cysts, partly by obstructing the tubules of the kidney and the bile ducts of the liver, thus causing retention of secretion, partly by the "hollowing out" of masses of proliferated epithelium and new-formed tubules and ducts. These cases would then correspond to the cyst-adenomas of Nauwerck and Hufschmied, Von Kahlden and others, and the interstitial changes might be regarded as secondary, probably due to an intercurrent inflammatory process, such as was plainly present in the liver of Case I at the time of death. (3) The malformation theory in one of its many forms might perhaps be adjusted to fit these cases. We have no evidence of any definite maldevelopment. We do have an excessive amount both of connective tissue and epithelium, the presence of which we might, with Borst, ascribe to an incoordinate development of the hypoblastic and mesoblastic elementary tissues, or, adopting Still's view, regard as the remains of embryonal elements that did not become properly differentiated.

Of these possible explanations I am inclined to adopt the second. The difficulty of differentiating, in some cases, between true neoplastic growths, as adenomas, and regenerative or hyperplastic growths is well known. However, in these cases, it is quite evident that an abnormal proliferation of epithelium is present, such as, I think, is unknown in ordinary inflammatory processes, and the belief that it has had a share, at least, in the production of cysts is, in view of the findings described, not without foundation.

Case III.[1]—These large and typic cystic kidneys were found in the body of a woman, forty-five years old, who was admitted comatose to the homeopathic service of the Cook County Hospital and died in a few hours, the diagnosis being uremia. The heart was enlarged, but there was no valvular lesion. Microscopically we note that the large cysts have dense fibrous walls with an imperfect lining of flat cells and in the contents are many colloid masses. The smaller cysts have a regular lining of short columnar cells with deeply stained nuclei; the cells may be several layers deep and there are frequent papillary outgrowths covered with one or more layers of cells and there are also masses of cells pushing out into the intercystic tissue. The smaller cysts also contain lamellated as well as coarsely granular masses. The intercystic tissue contains tubules with irregular, granular cells, with cells that have undergone colloid change, and with colloid masses. There are also fibrous, atrophic, and enlarged glomeruli. The vessels are greatly thickened in the intima and there is much increase in the connective tissue with a diffuse round-cell infiltration and small, hemorrhagic foci. The cortex and the medulla show essentially the same changes. Occasionally we come upon islands of cells in the intercystic tissue that are independent of cysts, have nuclei with much chromatin, the cells being sometimes arranged in a circle as though to form a cyst. This brief summary indicates two processes—a progressive formation of cysts as in cystadenoma elsewhere and a chronic and acute interstitial nephritis in the intercystic renal remnants.

Case IV.—The patient was a middle-aged woman who for years complained of a swelling in the region of the liver and finally died suddenly from a cerebral hemorrhage. The kidneys are very large and polycystic, many of the cavities being large enough to hold 100 c.c. or more. The liver was also converted into a mass of large and small cysts. The heart was hypertrophied and the cerebral vessels were sclerotic. Microscopically we find in the kidney similar papilliferous projections covered with epithelial cells as in the previous case, but not so numerously nor so well marked, and the tissue between the cysts contains more dense homogeneous fibrous tissue and less of the renal parenchyma proper. There are foci of intense round-cell infiltration present, however. The liver was kept for some time in carbolic acid and thus rendered unfit for

[1] For Cases III, IV and V, I am indebted to Prof. Hektoen. They were studied by him, and by his kind permission his notes were used as the source from which this description of the cases was obtained.

microscopical study. It is now in the museum of Rush College, but parts have been removed. It contains cysts varying in size from that of a pea or smaller to that of an orange. A few large cysts project from the surface; in other places the surface is smooth or slightly puckered. On a cut section about one-half of the total area is occupied by cysts. Some of the large cysts are separated only by thin fibrous walls; again there may be areas of several square inches almost free from cysts. The cysts seem to be somewhat less numerous near the upper surface than elsewhere.

Case V.—Man, colored, aged fifty-seven years, who had syphilis in 1856, died July 25, 1893, with heart hypertrophy, edema and ascites, large double inguinal and umbilical herniæ. The urine was albuminous, of low specific gravity, and contained granular and hyaline casts. He traced his illness back for five months and said that it commenced with pain in the abdomen and edema of the face and legs. The post mortem was made by Dr. Hessert; there was edema, ascites, hydrothorax, and the herniæ mentioned. The heart weighed 480 grams; there was some sclerosis in the coronaries and in the aortic and mitral valves, but there was no valvular deformity. The conjoint weight of the kidneys is 2,320 gms.; the measurements, 20 x 9.5 x 9 cm. The surface is thickly studded with cysts of varying sizes, some of which have translucent, others dark-colored contents. On the cut surface all parts of both kidneys are cystic, the largest cysts being perhaps the size of a hen's egg. In some of the cysts is a dark, granular sediment. Both pelves seem normal. The ureters are patent. The miscroscopic sections from this case show that there are papillary outgrowths into cysts covered with short cells and also masses of cells pushing into the cyst-wall, but the changes are not so marked as in Case III, while the increase in the connective tissue in the parenchyma is very marked and the round-cell infiltration very pronounced.

Case VI.—Dr. Bassoe has furnished me with notes concerning a case which he observed in the Cook County Hospital while an interne in the service of Dr. Arthur R. Edwards. The patient, an Irish laborer, forty-four years old, was admitted to the hospital on July 13, 1897. He died two days after admission, during an attack of epileptiform convulsions.

Personal History.—No venereal diseases; excessive use of alcohol; smoked and chewed tobacco. The patient sought admission to the hospital on account of difficulty in breathing, which commenced one week before admission; no other symptoms except some substernal soreness.

Physical Examination.—The patient is mentally dull. The tongue is parched, rough, and coated brown. The breath is foul. The veins of the forehead are distended. The nares are dilated. The pulse is full, slow, and regular. Breathing is labored, expiration accompanied by wheezing sounds. The arteries are sclerosed. The chest is somewhat barrel-shaped, moves as a whole, and the accessory muscles are in play; the supra- and infraclavicular fossæ are filled, and the lower intercostal spaces are retracted in inspiration. The lungs are hyperresonant, fremitus is diminished, breath sounds are harsh, expiration prolonged and accompanied by sibilant and whistling râles. The area of dulness over the heart is almost obliterated; heart sounds are distinct and apparently clear. The abdomen is slightly tympanitic; no areas of dulness or tenderness. The upper border of the liver is at the seventh rib in the mammary line, the lower border two finger-breadths below the costal arch. The spleen is not palpable. There is a small umbilical hernia. A scar exists as evidence of an old lesion of the upper third of the left tibia. There is slight edema of the lower extremities. Lymphatic glands and genitalia are negative. The skin is dry and harsh; there is a bruised area over the left hip. The urine is of a light straw color, reaction alkaline, specific gravity 1.010, contains a trace of albumin, no sugar. Autopsy was held by Dr. Cook. The anatomic diagnosis was as follows:

Pulmonary edema with emphysema; adhesive pleuritis (slight); cardiac hypertrophy and dilatation; cystic degeneration of kidneys; calcification of peribronchial glands; double hydrothorax.

The autopsy record contains the following description of the organs:

The abdominal cavity contains a small amount of clear fluid; the peritoneum shows no changes. The pleural cavities contain considerable quantities of a clear reddish-yellow fluid, without any flocculi. The right pleural cavity is partly obliterated by old adhesions; the apex is free. The anterior borders of the lungs approach each other and almost obliterate the precordial space.

The pericardium is smooth; the pericardial cavity contains a small amount of clear fluid.

The mucous membrane of the larynx and trachea is smooth and is covered with a small amount of mucus. The right lung weighs 1,000 gms., the left 1,020 gms. The surface of the left lung is smooth and of a grayish-red color; its anterior edges are emphysematous; it crepitates throughout. The cut section has a uniform dark-red color in the lower portions, light, almost scarlet, in the upper portions. A large amount of frothy reddish fluid can be expressed. The right lung shows a few old adhesions over the anteromedian aspect; on the posterolateral surface, in the lower lobe, is a calcareous nodule of the size of a filbert, just beneath the pleura. Otherwise this lung is like the left. The apices of both are negative. The peribronchial glands are calcareous and pigmented. The heart weighs 410 gms., and is a little larger than the owner's fist. The left ventricle is 0 cm. long and its wall is 1½ to 1¾ cm. thick. The right ventricle is 11 cm. long

and its wall 5 mm. thick. The valves show no changes. The left ventricle contains a goose-fat clot. The mitral orifice readily admits four, the tricuspid eight fingertips. The myocardium is fairly firm and of a uniform reddish brown color.

The aorta shows a few calcareous plaques about the coronary orifices and in the arch.

The spleen measures 15 x 10.5 x 2 cm. and is rather soft.

The right kidney weighs 630 gms. and measures 16.5 x 10 x 5 cm., the left weighs 610 gms. and measures 17 x 9 x 5 cm. The surface of both kidneys is rough and is the seat of numerous cysts ranging in size from that of a pin-head to that of a filbert. One cyst of the size of a small hickorynut contains a puriform material, the others contain a clear fluid. The cut sections show both kidneys to be honeycombed with cysts; there is no distinction between cortex and medulla; there is no evidence of pyelitis. The ureters are negative, likewise the bladder.

The liver weighs 1,950 gms. Its measurements are 28 x 22 x 20 x 6.5 cm. It has a smooth surface and cut sections present a uniform brownish red color; the lobular markings are indistinct. The gall-bladder contains dark bile and no calculi.

The stomach shows no changes.

The appendix is 4.5 ins. long and lies posterior to the colon, ascending to within 1.5 ins. of the liver.

No further records of this case are available. The only symptom pointing to uremia in this case was the dyspnea. This again calls our attention to the difficulty of diagnosing cystic kidney clinically. In attempting to make a diagnosis the following points have been emphasized by various writers as requiring chief consideration. (For fuller references see articles by Hektoen and Dunger). (1) The presence of a solid or slightly fluctuating, perhaps nodular, tumor in the region of one or both of the kidneys. There may also be prominences on the liver border. If the tumor has existed for many years and there is no history of previous inflammations it is very suggestive, especially if the tumor is bilateral. Malignant growths, inflammatory swellings and other more or less solid tumors must be excluded. Deformity of the abdomen, consisting chiefly in an increase in the anteroposterior diameter of the hypochondriac region (Dunger), may be included under this heading. (2) The clinical course. This may be one of chronic nephritis extending over years, as in our first case. Decrease in the elimination of urea is not always found; there may be blood, pus and albumin. Uremic symptoms may exist for some time, or coma and death may come on suddenly as in many of our cases. Cardiovascular changes and death from cerebral apoplexy are frequent. Intercurrent affections may end life before any definite symptoms of kidney disease have developed. (3) Aspiration of fluid contents of the kidney tumor and the finding of certain minute laminated or rosette-like bodies of yellowish color and colloid consistency. These may also appear in the urine. Their presence is considered pathognomonic (Dunger), but they have not been found in all cases and even when they are present repeated aspirations and urinary examinations may fail to reveal them. (4) Family history. This has already been dwelt on. If, in our first case, an autopsy had been performed on the body of the sister who died some years earlier with similar symptoms, and the autopsy had discovered the presence of cystic kidneys, the hereditary character of the condition might have led to a probable diagnosis of cystic kidney in the surviving sister.

Case VII.[1]—J. S., an apparently young man, was admitted comatose to the Cook County Hospital in February, 1905, and died on the day after admission. No history was obtained. A specimen of urine contained sugar and di-acetic acid. Autopsy was held by Dr. Hall, and the anatomic diagnosis was as follows: Parenchymatous nephritis of the left kidney; congenital cystic right kidney; tumor of the head of the pancreas; healed tuberculosis of the upper lobe of the left lung; healed tubercles in the spleen; atheroma of the aorta; sclerosis of the mitral leaflets; edema of the lower lobes of both lungs. The small tumor of the pancreas is found microscopically to consist of minute fibroid and encapsulated caseous tubercles and parenchymatous tissue in a state of degeneration. The left kidney weighs 200 gms.; its cortex is pale and the glomeruli indistinct; there is a small amount of fat in the pelvis. Microscopically this kidney shows marked parenchymatous degeneration.

The right kidney is small; it measures 7.5 x 5 x 2.5 cm. and weighs 52 gms. The normal markings are absent. The interior consists chiefly of cysts, about thirty in number, varying in size from that of a pea to that of a walnut, and separated by thin walls; many of these cavities communicate with the pelvis, which is large and rounded. There appears to be scarcely any renal tissue proper between the cysts. The cortex is reduced to a mere shell from one to four mms. in thickness. The ureter is patent, but very narrow; the blood-vessels are very small. Microscopically the cyst-walls and the small amount of intercystic tissue are found to be of a fibrous character. In the thin cortex are a great number of glomeruli, nearly all of which are reduced to fibrous, often hyaline spots; those not so altered have thick, fibrous capsules. The rest of the cortex consists chiefly of fibrous tissue, in which we find a few atrophic tubules which are generally very small and distorted. The proliferation of tubular epithelium, which was so marked a feature in most of the other cases which have been described, is almost absent in this case. However, here and there may be seen

[1] The material for the study of this case was obtained through the kindness of Dr. Hall, Resident Pathologist of the Cook County Hospital.

a tubule somewhat wider than normal, of irregular contour, and with deeply staining cells, which may fill the lumen. The microscope reveals no cysts, in the sections studied, that were not plainly visible to the naked eye, with a single exception, viz., a round, encapsulated space two or three times as large as an average glomerulus. The interior of this space is almost filled with slender papillary processes carrying large, deeply stained cells. With this exception there is nothing that suggests a progressive formation of cysts going on at the time of death. Some diffuse round-cell infiltration is present.

It will be seen that the cystic kidney in this case presents in some respects a contrast to those previously described; it is small, unilateral, and the proliferation of tubular epithelium, which we regarded as an important factor in the cyst-formation in the other cases, is here almost absent. Whether the degenerative processes were originally the same and were later followed by cirrhotic contraction and cessation of active cyst-formation, or we have here to deal with processes of a different nature, perhaps inflammatory or developmental, is a question not easily answered.

In conclusion, I wish hereby to acknowledge my indebtedness to Dr. P. Bassoe for his kindly help and advice in the preparation of this report.

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ADDRESS.

ON ASCENDING CURRENTS IN MUCOUS CANALS AND GLAND DUCTS AND THEIR INFLUENCE ON INFECTION: A STUDY IN SURGICAL PATHOLOGY.[1] [2]

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Mr. President, Ladies, and Gentlemen.—I propose, in using the opportunity now afforded me, to depart somewhat from usual custom, and instead of attempting a retrospect of recent surgical triumphs, and of advances in surgical technic, I would rather try to throw the searchlight of inquiry in the other direction, and indicate some of the ways in which these surgical triumphs may themselves throw light upon physiological and pathological problems, and in this way enable surgery in some slight degree to repay something of the debt she owes to these two foundations of her existence.

For when we come to consider the enormous number of what are really human physiological and pathological experiments, which are performed daily for necessary and well-defined surgical objects and to save life; when we reflect on the great opportunities which the continuous observation of these operation cases affords of looking into the inner processes of bodily function, both healthy and diseased, we are bound to inquire whether we, as surgeons, have in this respect carefully observed all that we might have done, and whether we have utilized to the utmost our many opportunities.

Thus, to come closely to the matter of my remarks to-day:

The Large Intestine.—Consider for a moment the very frequent, nay the daily establishment, of fistula for surgical purposes.

The operations of colotomy, cholecystotomy, nephrotomy, cystotomy, with the resulting fistulous openings into bowel, gall-bladder, kidney, and urinary bladder, should enable us, if rightly studied, to observe something of what goes on in the hollow viscera, the biliary canals, and the urinary tract, when the fecal stream or the biliary or urinary flow is wholly or partially diverted from its normal course.

We will consider the fistulous opening in the bowel, established by the operation of colotomy, first. I have in several of these cases tried to ascertain what occurs in the bowel below the colotomy opening by means of the introduction of some insoluble, innocuous pigment, such as hollow suppositories, containing a few grains of sterilized indigo or carmine, and will record the results in several cases.

Case I.—Cancer of the sigmoid colon with obstruction. About six inches of the bowel was removed with the growth, and partial end-to-end anastomosis performed; but, owing to the patient's condition from obstruction, a colotomy anus was also established. A week later, after recovery, a carmine suppository was introduced into the rectum. A white gauze plug inserted into the lower colotomy opening showed distinct carmine coloration within twenty-four hours, and this color continued to be noticeable for several days after the suppositories were discontinued.

Case II.—The second case was one of advanced cancer, with almost complete obstruction high up in the rectum. Here again, after inguinal colotomy, an indigo suppository placed within the rectum was followed by the appearance of indigo at the colotomy lower opening within twenty-four hours. Here the indigo had passed through the malignant stricture.

Case III.—Inguinal colotomy for cancer of the rectum, with ulceration into the vagina. A suppository containing powdered sterilized litmus was introduced into the rectum on Nov. 28, at 8 P.M. The bowels were moved through the upper colotomy, opening on Nov. 29 and 30, and on the 30th the white gauze plug in the lower colotomy opening was stained blue; the blue color turned red on the addition of acid, thus showing not only that the litmus had traversed the sigmoid flexure, through the stricture, from the rectum, but also demonstrating that the intestinal mucus, and the secretion of the large intestine is alkaline in the absence of fecal matter.

Case IV.—This case is of peculiar interest. An operation for acute appendicitis with abscess, six months

1 Abstract of Address in Surgery, delivered at the seventy-third annual meeting of the British Medical Association, July 24, 25 and 26, 1905.

2 Courtesy of British Medical Journal.

previously, had resulted in a fistulous opening into the cecum, which discharged a very little feces in the right iliac region when the patient assumed the upright position. While recumbent practically the whole of the feces was passed per anum. Before closing the fistula indigo suppositories were administered twice daily on Dec. 12, 13 and 14. Distinct evidence of indigo from the cecal fistula appeared on Dec. 15, the bowels having been moved freely on Dec. 13, 14 and 15, and an aperient taken by the mouth on Dec. 12 and 14. In this case the particles of indigo traversed the whole length of the large intestine within at most three days, and during the time that the natural downward passage of fecal matter was going on, and in spite of the active clearing of the bowel on two occasions by aperients.

From these cases we learn:

First, that in the large intestine, in cases in which the fecal stream has been diverted by a previous colotomy, there is an upward current capable of carrying foreign particles such as powdered indigo along the bowel, and taking about twenty-four hours to pass from the anus through the sigmoid flexure to the colotomy opening. The shortest time recorded has been twelve hours.

Secondly, that this current is not arrested by the presence of a stricture in the rectum, provided that there is, of course, some patency of channel left.

Thirdly, from the case of the girl with the cecal fistula, we learn that it is not essential for this upward current that the fecal current should be wholly diverted or absent, or that the bowel should be prevented from undergoing brisk downward peristalsis, the effect of an aperient.

Fourthly, from the same case, we learn that this ascending current takes about three days to pass from the anus along the whole length of the large intestine to the cecum.

In offering any explanation as to the means by which this upward carriage of pigment particles is brought about we must remember:

1. That in the case of the indigo, at any rate, the particles are insoluble in the intestinal juices. Indigo, administered by the mouth, is recovered, unchanged, as far as microscopic appearance goes, from the feces, so that the material is conveyed in particulate masses, probably by a mucous stream, and not by the agency of phagocytes or wandering cells.

2. Also the current is absent in the dead bowel, and is not due to capillary flow in a closed tube. If, for instance, indigo is inserted into the lower end of a portion of sheep's colon, removed after death, no ascent of the powder occurs in the tube.

3. Further, even in healthy animals, in the absence of any fistulous opening there is some upward flow, though slight, along the bowel. Indigo, inserted into the rectum of a guinea-pig, may be found when the animal is killed, forty-eight hours later, in the feces higher up the colon.

4. Also, the current is quickened by any influence, such as the administration of an aperient, which acts by increasing peristalsis, or, very possibly, by increasing the secretion of mucus. This was shown in the last case.

In fact, a consideration of the facts strongly suggests the explanation that particles of indigo, etc., are carried up the bowel by a mucus current, and that, while there is a central downward current of solid or semi-solid feces, caused by peristaltic contraction, there is going on at the same time, intermittently, or possibly alternating with the downward peristalsis, an upward peripheral mucus stream, covering and hugging the intestinal mucous membrane, and capable of conveying minute particles only along with it.

Some sort of upward intestinal current has been suspected in the large bowel, and hypothetically spoken of as due to reversal of the peristaltic wave. This is an unlikely explanation from the facts mentioned above—that it is present while the downward peristalsis is going on at its normal rate, and also when the bowel is quite empty of any feces at all.

I venture to think that these facts have a not unimportant bearing on the physiology of a large intestine. By means of such an upward stream the nutritious fluids and particles which are being absorbed out of, or squeezed out of, the gradually solidifying and hardening feces, as they traverse the colon, are carried gently upwards into the emptying upper reaches of the bowel, and are presented to the free mucous membrane for readier absorption. They, too, have a direct bearing on therapeutics and on the administration of enemata, both nutritive and purgative.

The Female Generative Tract.—We now pass to the consideration of the female generative canal. Here surgical operations on the Fallopian tubes have afforded opportunities for careful observation.

In a considerable number of cases during the last two years in which it appeared likely that operation would become necessary on the appendages, after the preliminary douche a little colored pigment—in most cases purified and sterilized indigo, in a few carmine—has been either placed upon or inserted just within the os uteri at varying periods up to twenty hours before operation. Careful microscopical examination of the contents of the Fallopian tubes in these cases has nearly always shown the presence of indigo or carmine particles, while in several cases the pigment has been found on the peritoneal surfaces of the broad ligament, mesosalpinx, and the fimbriæ of the Fallopian tubes. This shows that the particles are carried from the os uteri below, right through the uterus and the Fallopian tubes, to the peritoneal sac around the ovary above.

In the case of these pigment particles, automobility (such as the spermatozoa possess) is of course out of the question, and we must fall back on ciliary action, or an ascending mucous stream along the contiguous walls of the mucous canal.

Before, however, we enter on any explanation, it will be well to analyze the results more fully.

Thus in 22 cases in which careful examination was made of the contents of the Fallopian tubes and peritoneum for the presence of indigo introduced into the os uteri at periods up to within twenty hours before operation, there were only four in which no pigment was found.

Of these four cases one was a case of double hydrosalpinx, in which any connection with the uterine cavity was difficult or obliterated.

In one the indigo had been inserted only sixteen hours before operation.

In two cases the indigo was inserted on the first day of the establishment of the menstrual flow, and probably failed to enter the uterus.

On the other hand, positive results were obtained in three cases of double pyosalpinx. In one case of uterine fibroid and in two cases of tubal pregnancy in which rupture or tubal abortion had occurred. One of these is interesting from the fact that the remaining left ovary and tube had been removed two

years previously. The indigo was found in the bloody mucus contents of the tube on the uterine side of the rupture and in the blood filling the conception cavity.

Indigo was also found in two cases of chronic appendage disease, in which the indigo was inserted on the last day of the menstrual period, and in two cases of hysterectomy, which are of special interest. In one the patient was seventy years old, and therefore the uterus was senile. In the other the uterus was removed some months after the artificial menopause produced by oöphorectomy twelve months before. These two cases clearly show that this upward mucous stream is not dependent on the functional activity of the uterus, since it occurs in the senile and post-climateric organ as well as in the actively functional state.

In two cases of large ovarian cysts pigment granules were found on the peritoneum, and in the contents of the tube dilated and stretched over the cyst wall.

In the case of suppurating ovarian cyst with pyosalpinx indigo was found in the pus in the tube. It was also found in three cases of chronic inflammatary disease of the appendages; probably gonorrheal in origin.

In one case of large pyosalpinx and ovarian abscess on one side and hemosalpinx on the other, operation became necessary while the temperature was 104° F., and twenty-eight hours before operation pus began to escape from the uterus. Indigo was found in the bloody contents of the left tube, but not in the pus in the right tube, or that of the ovarian abscess. No doubt the particles were washed away from the uterine opening of the right tube by the flow of matter from the opening.

I desire also to draw attention to the presence of the indigo within the pus cells in one of the two cases of pyosalpinx. The granules were actually ingested by the cells, and lay scattered as blue pigment grains in their interior. In fact, we had succeeded in feeding the pus cells with indigo, and had produced an intravitam staining.

Two explanations are possible: Either the material had entered the blood, or lymph stream, and had been ingested by leucocytes or phagocytes, which had then migrated into the abscess, or the pus cells had ingested the granules *in situ* in the abscess, after the pigment had been carried thither up the Fallopian tube. This will, I believe, prove to be the true explanation, and also carries with it the interesting fact that pus cells, as such, after their entry into an abscess are capable of ingesting foreign particles into their interior.

In the other three cases of double pyosalpinx examined indigo was found in the pus in the tubes, but not in the cells. Now, in these cases there was no manifest discharge of matter from the uterus, though the presence of the indigo in the tubes proves that the communication between the tubes and the uterus was still patent. In fact, I believe that this is the case in most, if not all, cases of pyosalpinx. Blocking, temporary and intermittent, no doubt occurs of the lumen of the tube on the uterine side, but bearing in mind how difficult it is, even by operation, to obliterate the channel by any means, short of excision. I think it very probable that some communication exists in most of these cases of secondary infection of tubes with purulent contents, and that an occasional slight escape of pus occurs, with corresponding relief of intra tubal tension.

In fact, the whole subject of tubal regurgitation of uterine contents is very interesting. We know from the artificial production of hydrometra and hydrosalpinx in animals, under aseptic conditions, that regurgitation of the hydrometric fluid from the distended uterus is much prevented by the sudden deviation of direction which the tube takes in passing through the uterine muscular wall. At the same time, no opposition is encountered by the mobile spermatozoa in their upward passage. As we also now know, from the observations I have just described, that foreign particles of a suitable size, if introduced into the vagina, are habitually carried up the whole length of the genital canal in women. It is not absolutely necessary that the indigo should be inserted into the cervix, for, if deposited in the upper vaginal vault, it is still found occasionally in the tubes at the operation.

The question of the size of the particles is an important one. Particles up to the size of lycopodium grains are carried up, but this seems to be about the limit, as I have found lycopodium (a very few grains) in one case only.

This same upward current exists also in animals, for I have repeatedly found indigo particles in the Fallopian tubes of rabbits after insertion of the powder in the vagina.

I wish also to record an observation at this point on the question of mucus currents in the oviduct of birds. After dusting indigo on the cloacal opening, or after insertion of the powder within the cloaca in fowls, the pigment was found, not only upon, but also sparingly incorporated in, the egg-shell, and I have seen it in the Viteline membrane, thus showing that it had passed up the oviduct. Further observations are necessary to ascertain whether this occurs only at certain periods or throughout the egg-laying period.

I feel sure, however, from repeated observations during intra-abdominal inspection of the fimbriated ends of the Fallopian tubes during the menstrual period, that regurgitation of menstrual blood and mucus occasionally occurs from the abdominal ostium of the tubes; moreover, blood is sometimes found free in the pelvic cavity without symptoms and apart from any question of tubal pregnancy. In fact, I have no doubt that in many cases of dysmenorrhea in young women the pain is really tubal in origin, and is due to peristalsis of the tube in its effort to overcome this regurgitant wave. The pain, in fact, is due to tubal, not uterine colic.

Let us for a moment consider one other important fact, depending on the establishment of the presence of this upward, utero-tubal, mucus current. Those who are brought in contact with uterine cases know that gonorrheal and puerperal poisons, although the most important, do not exhaust all the sources of tubal and peritoneal infection.

The mere exposure of the upper vaginal tract to dirt, to lotions and ointments, to any substance surgically unclean, by whatever means introduced, has in many cases originated the salpingitis and chronic endometritis, and I am not without hope that this picture of the constant upward mucus-current which I have described may produce a greater sense of responsibility in surgeons, and tend, perhaps, to check some of the indiscriminate curetting operations which are so fashionable, and which (while the only treatment in some cases) in others only aggravate the troubles they are supposed to cure.

Fortunately the door, though open, is guarded by the watchful peritoneum. Foreign particles and fluids introduced, as it were, guttatim, by the tiny canal of

the tube, if not too virulent, are at once incarcerated and rendered inocuous. But it should surely make us all most careful to know that any powdered substance we introduce into the os uteri will probably be found, within twenty hours, inside the peritoneal cavity.

The Upper Intestinal Tract.—I shall say a few words later about the means whereby this current is brought about; meanwhile, we pass to the consideration of the upper intestinal tract and the mucous ducts of the glands opening into it.

The gall-bladder is the viscus which, owing to its frequent exploration and drainage for surgical purposes, is specially adapted for investigation on these lines.

I have examined the bile in several cases of gall-bladder fistula following the removal of gall-stones, systematically and daily, for varying periods, indigo being administered by the mouth in cachets containing about 5 gr. during the same period. The bile collected from the fistula is allowed to deposit a sediment, which is examined microscopically, and, in some cases, centrifugalized.

The indigo thus administered by the mouth makes its appearance in the feces about forty-eight hours later, and colors them a dirty or slaty-blue color, which on microscopic examination is found to be due to indigo grains in masses. This shows that most of the indigo passes unchanged, by gastric, pancreatic, or intestinal digestion, through the alimentary canal.

The following are the details for cases examined:

Cholecystotomy for gall-stones and drainage, Nov. 8. On Nov. 20—twelve days after the operation—the patient commenced taking indigo, 5 gr. twice daily for one week. Indigo was found in the bile from the fistula two days after taking the drug.

Cholecystotomy for gall-stones and drainage of gall-bladder on Dec. 1. Indigo was administered on Dec. 5, and on Dec. 7—two days later—indigo granules were found in the bile from the fistula.

Cholecystotomy for distended gall-bladder containing clear bile-free mucus, due to the impaction of a gall-stone in the cystic duct. In this case indigo was commenced four days before the operation. None, however, was found after careful search in the bile-free mucus obtained from the gall-bladder at the operation, or in the bile obtained from the fistula two days later. On Dec. 27, however—six days later—while the patient was still taking indigo, and some 6 oz. of bile and mucus were escaping daily from the fistula, indigo granules were freely found in the mucus coating the wick of white sterile gauze in the fistula, and in the bile collected in the bottle and flowing from the fistula.

Cholecystotomy.—Indigo administered four days before operation. Gall-bladder opened, inflamed; two stones were impacted in the common dilated duct. No indigo was found in scrapings of the gall-bladder mucous membrane, or in the mucus covering the gall-stones at the time of operation. Three days later, however, a few indigo grains were found in the bile flowing from the fistula, and two days later still more was found in the mucus flowing from the gall-bladder and coating the gauze wick.

These cases, then, suggest the fact that a reflux mucus stream becomes established from the duodenal papilla, along the bile ducts to the gall-bladder, in cases in which a fistulous opening has been made into the gall-bladder and by means of this current the indigo particles are conveyed.

It will no doubt be urged, on the other hand, that the indigo was absorbed in the ordinary way, by blood or lymph stream, from the gastric or intestinal mucous membrane, and was only detected in the bile after excretion by the liver. There are, however, many facts which oppose this explanation.

We have seen that indigo passes, for the most part, unchanged through the alimentary canal, and is not absorbed from the stomach or intestine. It is, of course, known that soluble indigo, in the form of sulphindigotate of soda and other soluble dyes, such as carmine solutions administered by the mouth, do color the bile (see Naunyn on Cholelithiasis. New Sydenham Society).

I find on examination that indigo, itself a very insoluble substance, is slightly soluble in bile, and can be deposited from such solution on evaporation as minute crystalline needles, and never, as far as my observation goes, in the shape of large or amorphous particles. Now the indigo obtained from the fistula in these cases was in the form of fair-sized, irregular masses, sometimes bright blue granules, never crystals. Moreover, it is a suggestive fact that they are found chiefly in the mucus lining the gall-bladder, rather than in the rapidly flowing bile.

Further, in the third and fifth cases indigo was absent from the contents of the gall-bladder and bile duct at the time of operation, although the patient had been taking it previously, while it was found in the bile and mucus regurgitating from the fistula when this was fully established some days later.

In order to throw additional light on this point, I fed a guinea-pig for some days with indigo, and then, after killing the animal, examined the contents of the gall-bladder. No indigo was found in the bile contained in the gall-bladder, nor did any crystallize out on evaporating this dryness. A scraping was then taken of the mucous membrane lining the gall-bladder, and numerous bright blue indigo granules were found. The bladder itself was then opened out on a slide and cleared, but no indigo was found in the peritoneal or muscular coats. This observation is also important, as in this animal the bile and gall-bladder currents were normal, and unaffected by fistula.

On these and other grounds I have no doubt that the indigo found in the bile in these cases is actually conveyed along the mucous channel of the bile and cystic duct from the duodenum, and not by way of the blood or lymph stream. No doubt it is only sparingly present, and considerable examination of quantities of bile and mucus is necessary to find it. But we must remember that the opening of the biliary papilla in the duodenum is only a lateral one—an open window, as it were, past which, and not directly into which, the hurrying duodenal stream of semi-digested food is passing, and it is only such few particles of indigo as adhere and cling round the opening of the duct that will be carried by the mucous current along the duct to the gall-bladder.

It will be suggested that if indigo particles find their way thus, why not particles of food? And, indeed, I think it very probable that such small particles do pass in this manner from the bowel under the altered conditions of the bile circulation, in fistulæ of the gall-bladder. I have myself found, in the fistulous bile, along with blood, cells, bile pigment, epithelial cells, pus and other substances—particles which look, under the microscope, suspiciously like cellulose and vegetable fiber.

We must remember that, owing to the surgical operation, and the establishment of the gall-bladder

fistula, the normal action of this viscus has been suspended, there is no longer any outflowing stream of mucus passing from the gall-bladder along the cystic and common bile ducts into the duodenum. In fact, there are many difficulties in accepting the conventional, bile reservoir, function of the gall-bladder. And in view of the demonstrated importance of a continuous mucous stream, along the bile, and other mucous ducts, in the direction of their flow, I am strongly inclined to think that one important, if not the chief function of the gall-bladder, is to supply this lubricating stream.

The question of the origin of gall-stones also intrudes itself on our notice. Does the demonstrated passage of inorganic particles along the bile ducts from the bowel, under the abnormal conditions of gall-bladder fistula, throw any light on this important question?

I fear at present we are not justified in making any definite statement on this point. Given, however, a temporary cessation of normal bile flow along the ducts, or of a normal mucous flow from the gall-bladder—a condition, in fact, produced pathologically, somewhat resembling the condition present in gall-bladder fistula, produced by surgical operation—we may, I think, say this much: that it is probable that not only may the upward passage of even non-motile infective organisms be possible, but that minute foreign particles may, under these conditions, find their way into the gall-bladder and serve as nuclei for the deposition of biliary concretions.

We know from Naunyn's valuable work on cholelithiasis (see New Sydenham Society's *Translations*, 1896) that pathological changes in the epithelium lining the biliary passages are more important factors in the causation of gall-stones than any alteration of the chemical composition of the bile. Naunyn also showed the influence of stagnation of bile in this matter and the important rôle played by pyogenic organisms derived from the intestine, especially bacillus coli, in causing the cholangitis and catarrh of the mucous membrane of the ducts.

We know from the observations I have described that the temporary diversion, or reversal of the direction of, the bile current brought about by gall-bladder fistula favors the entrance of minute particles from the duodenum into the bile ducts. Does it not, therefore, appear likely that the temporary stagnation of bile flow, probably associated with cholelithiasis, and present in certain pathological conditions of the liver and duodenum, may really operate by bringing about a like entrance of micro-organisms along the common duct, with possibly, minute foreign particles also, which may serve as condensation nuclei. Is it not probable that many cases of so-called catarrhal jaundice are thus explained?

The Urinary Tract.—We now pass to the consideration of the urinary tract, from the kidney to the bladder, and from the bladder to the surface by way of the male and female urethra.

We will consider the ureters first. Reverse infection of the pelvis of the kidney so frequently occurs from interference with bladder function by septic instrumentation that the ureter is universally regarded as the usual channel of infection, and not the blood stream. When we come, however, to consider the manner of this ureteral infection, the successive steps are not so clearly known.

In extreme cases of marked obstruction to the outflow of urine from the bladder, in which backward pressure of urine leads to dilatation of the ureters, and in which the interior of the bladder has become infected, by instrumentation or otherwise, it is of course quite possible that the open water-way, by arrest or reversal of current, may explain the upward carriage of infective organisms. At present I have not had an opportunity of testing the transference of indigo to the pelvis of the kidney in these cases. The more important point, however, was, if possible, to determine whether, supposing that from any cause (such as the establishment of a renal fistula) the normal downward current of secretion from the kidney to have been arrested—whether under these circumstances any regurgitation of mucous stream occurs in the normal, or at all events undilated and competent, ureter.

The following case has an important bearing on this point:

Lumbar Nephrectomy for Cystic Destruction of the Kidney by Calculus Impacted in the Lower End of the Ureter.—The calculus was detected by a probe in the ureter at the time of the nephrectomy, but the condition of the patient was such that it was thought wiser to bring the open end of the ureter to the skin surface in the loin, and remove the calculus at a later date through a vaginal incision. This was done one week later, and a good recovery ensued. After the operation of nephrectomy the bladder was irrigated daily, and two drachms of an iodoform emulsion, containing sterilized indigo, allowed to remain in the bladder.

The fistulous opening of the ureter on the loin was lightly plugged with a little white sterile gauze. This and the muco-pus from the ureter were examined daily, and on three occasions numerous indigo particles were found, showing that here, at all events, a reverse mucous current had passed up the ureter in the absence of any urine.

The position, then, at present, is probably this: Given an arrest, from any cause, of the normal downward current of urine along the ureter it is possible that a backward mucous current may occur, carrying with it any infective organisms or foreign particles, such as pus, or blood cells, or débris, which may be present in the bladder.

What we do not at present know is whether this regurgitation occurs in those cases of kidney infection in which there is no direct evidence of arrested secretion. We are not at liberty to assume, however, that even in such cases temporary arrest does not occur. It is, indeed, known that the flow of the urine from the ureteral orifices is intermittent under normal circumstances; it is possible that this intermittency may be increased to the point of temporary arrest under pathological conditions.

We still have to consider the question of the entrance of infection into the bladder from outside; the conditions, in fact, of the mucous currents in the urethra.

I will first consider the male urethra. The conveyance of infection from the exterior, in the absence of any outside interference, with a normal flow of urine along a healthy urethra is, of course, practically unknown. But, as in the case of the gall-bladder, the frequent performance of suprapubic cystotomy for surgical purposes, in the urinary bladder, affords opportunities of investigating what goes on in the urethral mucous canal.

I have investigated two cases of suprapubic cystotomy in which the bladder was drained by Sprengel's pump after prostatectomy.

Complete Prostatectomy.—Oct. 20, 1904. Bladder drained suprapubically by Sprengel's pump, blood was present in the urine for ten days, then clear. On October 31, ten days after operation, indigo was inserted within the urethra four inches from the meatus in the

eye of a Jacque's catheter, and again two days later. The urine drained suprapubically was collected daily, and the sediment examined. Indigo grains were found sparingly in the deposit.

Noticing the difficulty in finding such a minute quantity of indigo in such a large quantity of fluid, and the labor involved in searching for it, in the next case I adopted a somewhat different technic.

Prostatectomy for Adenomatous Prostate and Suprapubic Drainage of the Bladder by Sprengel's Pump.—March 25, 1905. The urine remained blood stained for one week after operation, but when clear, eight days later, a little sterilized indigo was inserted into the penile urethra just within the meatus, on one occasion only, no urine having been passed per urethram.

A small piece of white sterile gauze was placed at the bottom of the suprapubic tube or silver cannula, and this served as a filter, through which the urine and vesical mucus passed, before being drawn out by the aspiration of the small inner glass tube, through the suprapubic opening.

The gauze was removed about twenty-four hours later, and a cover-glass preparation taken of the mucus and urine which it contained. Bright blue indigo granules were freely found in varying sized particles.

Now, since all source of accidental contamination from outside was avoided by a dressing over the suprapubic opening, the indigo can only have gained access to the interior of the bladder by traversing the urethral canal.

Further, we must remember that in both these cases no instruments had been passed, and that the urethra was uninjured, at any rate up to the triangular ligament and prostate portion. The main point, of course, being that all passage of urine had been arrested for some days along the mucous canal.

I have also tried inserting indigo within the urethra alongside of a catheter retained in the urethra and bladder, in cases where it has been necessary for surgical reasons for some days to drain the bladder through a tied-in catheter. In several of these cases I have recovered the indigo from the urine flowing from the catheter, showing that the material has passed centripetally along the urethra to the bladder. I do not feel, however, that much stress can be laid on this, as there is always more or less to and fro, or inward or outward movement of any instrument tied in the bladder: it tends to be expelled, and is passed back again and re-secured, as the movements of the patient after its position, and it is thus quite possible that, by friction of the instrument against the wall of the urethra, any material might be mechanically conveyed, in successive waves, along the urethra to the bladder.

This objection does not, of course, apply to the previous cases in which no instrument was used; but, at any rate, the experience of the latter case shows how easy it is for infection to be conveyed from a dirty meatus alongside a retained instrument into the bladder; for if inorganic particles can float, as it were, in the mucous stream which is set up between the instrument and the urethral wall, and are carried thus backwards into the bladder, infective organs can do the same. It is not necessary to assume that they must be conveyed on the point of or by a dirty instrument; they may reach the bladder by way of the urethra from the surface at the meatus after the introduction of the instrument.

In fact, surgeons know well that even though the urine be received by a tube direct from the catheter into some antiseptic fluid, without contact with the air, yet it is practically impossible to keep the bladder aseptic for any length of time in cases in which an instrument traversing the urethra is tied in the bladder, and I think the above observations throw some light on the manner in which, and the route by which, this infection is brought about. At any rate, they point to the extreme importance of guarding the external orifices, and probably careful disinfection of the external meatus and the application of efficient antiseptic filtering dressings at this spot would have a good influence in preventing bladder infection in the manner above described, especially in those cases (and they should be very few) in which it is necessary to tie an instrument in the bladder.

One word as regards the short female urethra. In one case of vesico-vaginal fistula, with a very considerable opening, in which it was necessary to perform suprapubic cystotomy and operate from within the bladder, the opportunity afforded by subsequent suprapubic drainage was utilized to trace the urethral mucous stream in the female urethra. A little indigo was inserted just within the meatus, and a small filtering plug of sterile gauze inserted in the suprapubic tube through which the urine was draining. Indigo granules were found in the mucus coating this plug when removed six hours later.

We have thus traced the reflux passage of inorganic particles of a recognizable substance, like indigo, from the surface, along the urethra to the bladder and from the bladder to the upper end of the ureter. In all cases the important associated condition has been that the normal flow of urine has been diverted.

We still require observations on cases of pyelitis, made at the time of the operation, when the pelvis of the kidney is first explored, and in which indigo has previously been inserted into the bladder.

Observations on animals will probably be necessary to investigate this point, under conditions in which no previous diversion of the urinary flow has been brought about by surgical operation or disease.

The mode of infection of the epididymis by the tubercle bacillus, or by the gonococcus, or pyogenic organisms requires further examination.

I have not yet been able to test the mucous current in the vas deferens, but I think it likely that sterilized indigo inserted into the prostatic urethra in suitable cases will be recovered from tuberculous and other abscesses in the epididymis or the vesiculae seminales. If this should occur, then, the mucous canal of the vas deferens, and not the blood stream, will probably be the route taken.

Respiratory Tract.—With regard to the respiratory tract, and the mucous canals in connection with it, the accessory nasal cavities, the Eustachian tubes, and the bronchi, any observations on this part of the body are all, of course, open to the obvious objection that foreign particles may be, and no doubt are, carried by the air currents and distributed over the mucous surface.

I should, however, like to mention one case of chronic otitis media, with tympanic perforation, in which sterilized indigo was insufflated for four days into the retropharyngeal cavity. The muco-pus flowing from the external meatus was collected on both sides, and on the fourth day showed abundant indigo granules.

Of course, it will be objected that owing to some effort of sneezing or blowing of the nose the material was transported up the canals by a blast of air. The patient was instructed to avoid all such expiratory efforts, and I am inclined to think that the presence of the indigo in the internal ear is not due to this cause.

Supposing, however, that such is the case, it is surely a matter of considerable importance that in, at any rate, cases of perforated drums, not only air currents should pass habitually from pharynx to middle ear, but that

foreign particles should also find their way up the Eustachian tubes in the absence, of course, of all instrumentation. The bearing of this on the question of conveyance of infection from pharynx to middle ear is obvious, though, in the case of tympanic perforation, the important condition of diverted flow is present.

Glands.—We now pass to the consideration of the glands with ducts opening on to the surface of the body, and the possible conveyance of pigment particles along the ducts, from the skin to the alveoli of the glands.

The mammary gland, with its numerous ducts opening on the nipple, is the largest and most important of these glands. In a case of duct cancer of the breast, for six days before removal of the breast sterilized indigo was rubbed on the nipple twice daily, and a simple dressing of wool worn. Great care must, of course, be taken to avoid contamination of the exposed breast tissues at the time of the operation, but this, after all, is an object lesson in surgical technic, and the same precautions in the way of repeated washing and sterilization of the skin, which are taken to prevent contamination by skin organisms, will apply to the indigo also. In order to ensure absence of contamination, I have either coated the nipple and surrounding skin to be excised with a layer of gauze and collodion, or, having turned up the flap of skin to be excised inwards all round the nipple, I have tied this by a purse-string suture, thus leaving only the raw surfaces exposed.

The whole breast, after removal, is laid on a slab, with the deep surface uppermost, and the incisions are made into the breast tissue in the neighborhood of the ducts and into the portion affected by the cancer. Scrapings were taken from these incisions and indigo granules were found sparingly, but from several parts of the breast. Other cases of mammary cancer have yielded the same result. I have also examined unstained sections of breast tissue obtained in the same way in two cases of cystic disease associated with chronic mastitis, in which indigo had previously been applied to the nipple, and detected it in the breast.

In a case of chronic mastitis, with a scirrhous nodule in one part of the breast, in which indigo was applied for four days before operation, the pigment was found in the portion of mammary tissue containing the ducts, just beneath the nipple, but not in the solid portion invaded by growth. Now, the importance of this fact, of the conveyance of pigment particles from the skin to the deeper parts of the mammary gland, along the lacteal ducts, lies in its application to the question of the transference of infective organisms by the same route.

Here, again, it is a question of conveyance by blood, or lymph stream, as against the transference by mucous currents along the ducts, and it seems to me that the demonstration of the passage of inorganic pigment particles by this latter route strongly confirms the suspicion that it is by these duct channels that pyogenic and probably tubercular organisms gain access to the mammary gland.

I feel some hesitation, in the present unsettled state of the cancer problem, in mentioning cancer in this connection. All I will permit myself to say is this: That, if in the course of future research, the exciting cause of cancer shall be proved to be parasitic, the above observations may stimulate inquiry into the nipple route, as a possible channel of infection in cancer of the breast.

Conclusions.—We have now passed in review the conditions present in the more important mucous canals and gland ducts opening in the interior of the body, and in one case in the ducts of a gland opening on the skin surface, and a few general observations bearing on the facts so observed may not be out of place.

I think from the observations I have described we may consider it proved that by some means or other, and under certain conditions, particles of an insoluble substance, such as indigo, inserted into the orifices of a mucous canal or duct are conveyed along the mucous channel in a reverse direction to that taken by the contents of the tube, or by the secretion or excretion of the glands along such ducts. The conditions which seem to favor this passage are:

First, some interference with the normal flow of the contents of the mucous tube or duct; some arrest or diversion of secretion, such as is produced by a fistulous opening, though it is by no means necessary that this should be complete.

By what agency is this transference of foreign particles brought about?

Ciliary Action.—Though present in the upper generative tract, cilia are absent in the lower genital tract, in the intestinal canal, in the biliary ducts, in the urinary tract, and in the ducts or glands opening on the skin.

Muscular Contraction.—No doubt irregular or reversed peristaltic contractions in the bowel, if present, would bring about the result. It is, however, suggestive that the ascent of the indigo up the colon is not prevented, but rather accelerated, by the increased downward peristalis produced by purgatives. Reverse muscular contractions are as yet, moreover, unknown, or rather undemonstrated in the bile ducts, urethra, and urinary tubes, Fallopian tubes, or in the ducts of glands.

The phenomenon is not due to physical agency alone, such as capillary action. It is absent in the non-living tube. The transference of particles in empty tubes and ducts is one, and there are other reasons, before explained, for regarding the mucus which coats the walls of the tube or duct, as the vehicle in which the particles are carried. Further observations are necessary to ascertain whether a reverse current—a sort of mucous backwater—is present in all mucous channels, or whether it only exists where the normal outgoing current of secretion or excretion is interfered with. Such a back current is probably present to a certain extent normally, though much increased by any agency, such as a fistula, which starts a flow of mucus from the other end of the canal.

The essential conditions, then, seem to be a living tube, whose walls are partially if not wholly in apposition, and lined by a mucous secretion; while the reversal of this mucous current is favored by any condition (such as a fistula) which leads to arrest or diversion of the ordinary secretion of the viscus or gland.

The bearing of these remarks on the larger question of infection will be at once apparent.

I am inclined to think that in some cases more attention should be paid to mucous channels as routes of invasion, rather than to the lymph or blood stream. Thus I have spoken of the large share which such a mucous, as opposed to a blood infection, plays in the diseases of the female generative tract. The rapid ascent of the urethra by the non-motile gonococcus, and the colonization of deeper portions of the tube, apart from direct extension of growth and in the absence of instrumentation or injection, are thus explained. The ascending infections of the kidney by way of the ureter can also be investigated from this point of view.

Our knowledge of the causes which produce biliary and urinary calculi is still very incomplete. The facts which point to the importance of diseased conditions

of the mucous linings of the excretory tubes, in favoring the disposition of concretions, are of especial importance from this point of view. And bearing in mind the proved transference of particles, under certain conditions, from duodenum to gall-bladder and from urethra to ureter. I hope that further light may thus be thrown on these calculous diseases.

In fact, the burden of my remarks points to the necessity for the active recognition of the importance of all communications between the efferent canals of the body and the external world, and thus accentuates the value of personal hygiene and true cleanliness.

Gentlemen, I hope I have not wearied you with these remarks on what may be called surgical physiology and pathology. As I said at first, instead of pointing to new operations or improvements in surgical technic, instead of giving statistical tables indicating case-mortality after operations, I have tried to turn your attention the other way, and to glean a few facts from the many opportunities which modern surgery affords for the observation of fundamental processes of organic life.

And yet, without the surgical revolution which we owe to a few great men, and which has been one of the glories of our century, these life-giving operations would have been unperformed, and the light which they have shed in many a dark corner of the human body would never have shown.

Though the public (the mass of our fellow-creatures) are only beginning to grasp, as yet very imperfectly, the all-pervading influence which medical and surgical science, and indeed all the sciences which deal with physical and mental efficiency, will assuredly soon exert in the life of the Individual, the City, the Nation, and the State; yet it is surely fitting that we medical men, who know these things, should ever recall the services rendered to humanity by the Pasteurs, the Listers, the Kochs, and all those who have done so much to raise our calling to its present proud position—all those who have made these things possible.

And how better can we show our gratitude to them than by strenuous individual effort, each of us, in spite of much distraction and scanty opportunity, to add one small fact to the store of garnered knowledge; to bring even one stone to the building of that glorious Temple of Health whose topmost pinnacle will only be finished when disease and suffering have been finally vanquished.

MEDICAL PROGRESS.

NEUROLOGY AND PSYCHIATRY.

The Fear of Death.—J. Leonard Corning (*Jour. A. M. A.*, May 6) discusses the morbid exaggeration of the fear of death, which he considers due to a neuropathic basis inherited or acquired. In animals the fear of death is dependent on its imminency; in man it is sometimes a permanent obsession, but it is even then usually absent in the actual process of dying, the dulling of consciousness at that time and other dominating physical conditions accounting for this fact. He reports a case illustrating what he considers the essential psychology of the morbid dread of death, in this case even exciting suicidal impulses—death to escape death. In treating this condition he would suggest the thought that sleep is a sort of death, and unconsciousness whether lasting or not, a boon. His treatment was to prevent sleep until it was sought imperatively, and was based on the theory of proving experimentally that the temporary unconsciousness of sleep is the remedy for curable shortcomings and convincing the reason that the more lasting unconsciousness of death is only the supreme antidote of the irremediable breakdown of the organism, and therefore supremely benevolent in its essential nature.

Syphilis and General Paralysis.—The following conclusions are offered by Joffroy (*La Clinique*, April, 1905): Syphilis is not the efficient cause of general paralysis, which is not a disease of syphilitic nature. Mercurial treatment is of no value in the prophylaxis of paresis, which is not cured by it, and which may be made dangerous by this treatment.

Suggestion—E. J. Runyon (*Jour. A. M. A.*, May 6), calls attention to the need of a proper mental attitude toward the power of suggestion, which, as he says, "runs like a thread through every method of treatment, wise or otherwise." He also notes the dangers of self-deception in medicine and of drawing deductions from imperfect data or without due power of discrimination. While suggestion is often a power for good in the hands of the physician, it is one that may be abused and result in great and lasting harm. It is the main instrument of the pretenders; he reviews some of the noted instances of their exploitation of human credulity. The point emphasized by him is that the true practice of medicine is the intelligent application of common-sense principles and forces.

Chronic Nephritis.—W. M. Leszynsky (*Med. Rec.*, May 20, 1905), says that, aside from the various neurasthenic manifestations occurring in patients with chronic nephritis, many of the transitory subjective nervous phenomena arising during the course of the disease are the result of uremic—or possibly other—intoxication in varying degree, while nearly all of the transitory objective nervous phenomena, and the more permanent and incapacitating or fatal complications, are primarily due to the concomitant arterial disease. Hence palpable evidence of arteriosclerosis and high blood-pressure is usually of the greatest significance. The many forms which the nervous disturbances attendant on nephritis assume are described in detail, and several illustrative cases are cited in which the failure to recognize the uremic condition underlying symptoms apparently of nervous origin led to serious results.

The Curability of Early Paresis.—C. L. Dana (*Jour. A. M. A.*, May 6), suggests that paresis, like tabes—with which it is closely related as a parasyphilitic disorder—may be arrested in its earlier stages. By "arrested" he does not mean the well-known remissions of the disease; in these, he says, there still remains a certain amount of paretic mental impairment, but he rather means a complete disappearance of all evidence of degenerative changes in the brain. He reports a number of cases illustrating his contention, in which symptoms decidedly indicative of paresis appeared, characteristic mental changes, convulsions, Argyll-Robertson pupil, etc., but which disappeared under treatment, and the patients remained well for various periods under observation. The treatment generally consisted in complete change of life, antisyphilitic medication, preferably hypodermic, hydrotherapy, and attention to the general nutrition. He says there is no *a priori* reason why paresis in the early stages may not be sometimes cured, and he holds that the cases he here reports point that way and indicate the importance of an early diagnosis and treatment of this disorder, which has been heretofore considered incurable.

Functional Insanity.—In a treatise on this subject R. Jones (*Practitioner*, May, 1905) advances the view that many of the morbid mental conditions known as insanity are functional, and that therefore there are diseases of function as well as of organs. The author states that while we are accustomed to find in disease fine structural alterations, which account for the morbid phenomena, yet nature may experiment in so fine, subtle and obscure a manner as to alter the function of an organ or group of organs, without leaving any evidence of definite or appreciable change in structure. There are many cases who suffer from perverted sensations, or anesthesias, parasthesias and dysesthesias, from pains or algesias, from loss of power or paresis, from various affections of the sense organs, and even from mental abnormalities, yet who have no discoverable nervous lesions to account for these symptoms, and whose lowered vitality and consequent incapacity can only be described as functional. In support of this view the author states that if we except definite lesions accompanying paretic and other forms of dementia, certain neuronic and other changes in acute delirium, and the deficiency of brain development in idiocy and imbecility, there is no pathology of insanity. The author includes in the class of functional insanity which have no demonstrable pathological lesions the following classes of cases: Hysteria, epilepsy, hypochondriasis, chorea, suicidal manifestations, some forms of alcoholism. Throughout this class there is always an inherited tendency toward the production of the same mental affection.

Intermittent Claudication and Allied Syndromes.—J. R. Hunt (*Med. Rec.*, May 27, 1905) contributes an exhaustive study of all aspects of this affection, which was first described by Charcot in 1858. The literature since that time is reviewed, and alcoholism, syphilis, gout, nicotinism, diabetes, exposure, flatfoot, compression by a truss aneurism the neuropathic diathesis and congenital insufficiency of the cardiovascular apparatus are cited as etiological factors. The pathological findings may be summed up in the one word, angiosclerosis, though in advanced cases secondary changes of a trophic nature frequently occur, and the vasomotor element is also of importance in producing the spasm. While the typical picture of the disease comprises intermittent limping with the paroxysm during activity and complete freedom during rest, sensory symptoms and weakness may in some cases be present more or less constantly and give rise to errors in diagnosis. Cases in which the anus, rectum or bladder, brain, kidney or retina were affected have been recorded, and it is also thought that the paroxysms of angina pectoris were referable to a similar condition of the coronary arteries. The prognosis as regards cure is unfavorable, but by suitable treatment, consisting of rest, potassium iodide, cardiac tonics, warm foot baths and galvanic foot baths, much may be done toward warding off indefinitely the threatened gangrene. Digitalis, ergot, nitroglycerin, very hot or very cold baths should be avoided. Four illustrative cases are described, and in conclusion the author says that angiosclerosis of the extremities in its gravest form, uncomplicated by a vasomotor neurosis, leads to spontaneous gangrene. If the angiosclerosis occurs in combination with a vasomotor instability and a tendency to vasomotor spasm, the syndrome of intermittent claudication results. This is characterized by the development of sensory (pains and paresthesia) and motor (weakness and rigidity) manifestations during functional activity with a rapid and permanent restoration to the normal during rest. The syndrome, however, has a wider and more general application to the whole circulatory mechanism and has been observed in relation to various organs of the body—heart, intestines, brain, kidney and eyes.

The Action of Formic Acid in Diseases Accompanied by Tremor.—One of the most troublesome symptoms that resist treatment in nervous diseases is tremor. Experiments performed by E. Clement (*Comptes rendus*, May 1, 1905), show that formic acid has a remarkable action on muscular tone, causing a sensation of increased muscular firmness. The author investigated the effect of formic acid in certain forms of tremor, in which the muscular weakness is marked. He used this substance with success in two cases of tremor, one a woman sixty-five years of age, and the other a man of seventy-two years. The first case had lasted ten years, and the second eighteen years. They were not examples of senile tremor, for the chin, lips and head were not affected. The tremor disappeared in rest, which excluded Parkinson's disease. On voluntary motion the tremor was quite exaggerated, it was not rhythmical, nor did it have the oscillations of muscular sclerosis. Both cases showed a loss of the patellar reflexes. In doses of four grains of the normal solution of formic acid, this substance produced results at once rapid and surprising. In two days the improvement was so marked that the patients could raise a glass to the lips without discomfort, and without spilling half of the contents. Improvement continued, although the tremor did not entirely disappear, owing probably to the long duration of the motor troubles. No other drug can compare with formic acid in its efficacy in this direction, not even hyoscyamine, which has hitherto been the drug by choice. It would be interesting to investigate the efficacy of this new agent in Parkinson's disease and in certain forms of chorea.

PRESCRIPTION HINTS.

Treatment of Cerebrospinal Fever.—The chief indications are to feed the patient on milk, adding brandy, if necessary; the bowels should be kept free. The spasms are best treated by hypodermic injections of morphine in three-minim doses, but they may also be controlled by a combination of bromides and chloral hydrate as follows:

R Potassii bromidi .....gr.xx
Chloral hydratis .....gr.xii
Syrupi aurantii .....m.xxx
Aq. chloroformi .....ad. ℥i

Misce. Ft. Mist. Sig. Two tablespoonfuls to be taken three times daily.

The following medicine may also be found of use in persistent cases of cerebrospinal meningitis:

R Potassii bromidi .....gr.xii
Potassii iodidi .....gr.x
Syrupi aurantii .....℥ss
Aq. dist.....ad. ℥i

Misce. Ft. Mist. Sig. Two tablespoonfuls to be taken three times daily after food.

Some physicians recommend the administration of potassium iodide in small or moderate doses as soon as the diagnosis of cerebrospinal meningitis is made. This should be continued three times a day.—*Practitioner*, June 15, 1905.

The Medical News.

A WEEKLY JOURNAL

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THE SIGNIFICANCE OF THE DIMINUTION OF FREE HYDROCHLORIC ACID IN THE STOMACH IN MALIGNANT DISEASE.

As a diagnostic sign, the absence or marked diminution of the free gastric hydrochloric acid has been accorded considerable weight in determining the presence of malignant disease of the stomach. The cause of this diminished secretion has been unknown, or has at least been attributed to an atrophy of the acid cells of the gastric mucosa, or an inhibition of their function by the ulcerative process in the wall of the stomach. That this absent, or retarded, secretion is not due to purely local causes, but is an expression of the constitutional disturbances underlying the malignant process, is the latest conclusion based upon experimental investigation.

This research was conducted by Prof. B. Moore (Proc. Royal Society, May 24, 1905), who studied the chemical composition of the gastric juice in cases of malignant growths, not only of the stomach, but also of other organs. He discovered that in malignant disease of any organ there is a marked diminution of free hydrochloric acid in the stomach in all cases below one per cent., or else an entire absence of this substance. The interpretation of this finding has suggested to the author certain interesting and, at the same time, important speculations on the subject of the etiology of cancer.

The chemical processes underlying the formation of hydrochloric acid in the stomach reside in the specific activity of the oxyntic (acid) cells of the gastric glands. These cells bring about the reaction between sodium chloride and disodium orthophosphate brought to them by the blood, with the formation of hydrochloric acid. Whatever the true explanation of this formation may be, there can be no uncertainty as to the fact that the precursors of hydrochloric acid exist in the blood, and that they consist of hydrogen and chlorine ions, in whatever combinations these may be. Now, it is known that hydroxyl ions also exist in the blood, which, accordingly, has both acid and alkaline reactions. Whatever causes tend to diminish the hydrogen ions in the blood cause a corresponding increase in the hydroxyl ions, and vice versa.

A number of explanations may be advanced to explain the inability on the part of the acid cells to bring about the chemical elaboration of hydrochloric acid. One of these is that the acid cells are atrophic; yet, while this may be true in cases of malignant disease of the stomach, there is no reasonable connection between such atrophy and malignant disease of other organs, in which deficient acid secretion also occurs. Such atrophy, moreover, has not yet been demonstrated. A second possibility has suggested itself, namely, that the malignant process inhibits in some way the function of the oxyntic cells. This explanation is shattered by the following observation made by Moore: "The radical operation was performed on a case of carcinoma of the breast, and many weeks later, after the patient had been discharged cured, the deficient secretion of hydrochloric acid still continued." The third explanation, which is the one advanced by the author, holds that the deficiency of acid secretion is the result of a diminution of the hydrogen ions in the blood. To quote this investigator, "the persistence of absence of acid secretion after the growth has been removed points to the view that the condition of the blood and most probably the absence or marked diminution of acid ions in it is to be regarded as a cause predisposing to growth formation, and not as an effect of the growth."

This view, which, if correct, will clear up the misty subject of cancer etiology, has a strong basis in experimental investigation. The researches of Jacques Loeb have clearly demon-

strated that each tissue depends for its health upon the chemical equilibrium of its immediate environment—the blood. This equilibrium consists in a delicate balance of the various inorganic salts. If one or more of these be increased, diminished or removed, there results a disturbance or an arrest of function. With respect to the effect of a diminution of the hydrogen ions and an increase of the hydroxyl ions, the following experiment, performed by Loeb, has an important bearing: He found that 1 c.c. of decinormal caustic soda (representing the hydroxyl ions), when added to 100 c.c. of sea-water, causes a remarkable increase in the development and growth of the eggs of the sea-urchin. A greater amount of alkali stops the growth entirely. It is thus seen that a slight increase in the hydroxyl ions acts as a powerful stimulus for cellular proliferation.

Inasmuch as an increase in the hydroxyl ions either absolutely or relatively is a necessary concomitant of diminution in the amount of hydrogen ions contained in the blood, which diminution has been found to occur in malignant disease, there are strong grounds for believing that this increase of hydroxyl ions plays an important rôle in the genesis of new growths. The tendency of recent research has been to attribute these abnormal cellular proliferations to a reversion of the cells to their habits in early embryonic life. There is, in fact, a latent tendency on the part of the living units to return, on the slightest provocation, to their primitive state of unchecked, riotous multiplication. It needs but a slight disturbance of the chemical equilibrium of the blood and other tissues to set in motion these inherited capacities of the cells for extravagant reproduction. Whether or not this stimulation is afforded by the reduction in the hydrogen ions and the increase of the hydroxyl ions of the blood, remains for future investigation to decide, yet the researches of Loeb and Moore are very suggestive in showing the chemical origin of new-growths.

The tendency to a recurrence of malignant disease, even after all traces of new-growths have been radically extirpated, strongly supports the hypothesis of the dependence of this condition on the chemical nature of the blood, which is not influenced by surgical procedure.

Apart from these speculative considerations, the discovery that there is a diminution or an absence of free hydrochloric acid in the stomach in malignant disease of any organ, has an important practical application. When this disease is latent, an examination of the gastric contents may give an important clue to the diagnosis. From the viewpoint of treatment, moreover, it would be interesting to note the effect of drugs that increase the number of hydrogen ions in the blood.

RADIATION THERAPY AND COMMERCIALISM.

A simple rehearsal of a recent set of incidents apparently not closely related to each other, and yet that on consideration will prove to have much more intimate associations than might be suspected, seems worth while giving for the sake of the lesson in certain modern medical advertising methods which it contains.

Some months ago there came the announcement widely heralded in all the daily papers of this country, that a very prominent educator, known to be suffering from a severe form of internal malignant disease, had been treated by various forms of radiation therapy and the result, it was said, had been eminently successful. Immediately there were editorials and special articles of many kinds hailing this new remedy for cancer and great hopes were raised in the breasts of all those who are suffering from malignant disease.

The medical press of the country paid very little attention to the sensational news, and mentioned it only to deprecate the raising of hope that would probably not be fulfilled. The announcement of cures for cancer is frequent enough, but cancer still continues to count its victims with even greater frequency than ever, and at the present time at least one in thirty of all who die, die from malignant disease. At the important meeting of the Association of American Physicians, at Washington, the only reference made to the recent sensational reports was the very conservative statement that cancers of the cecum usually run a rather slow and uncertain course and that though the opposite might be expected from the constant irritation, malignant disease of the large intestine in general, seldom developed to a rapidly fatal termination. Several of those who took part in the discussion on abdominal tumors, agreed with this statement but no reference was made directly to the case that has attracted so much attention.

Much as we might like it to be otherwise, the hopes that have thus been raised seem destined to be dashed to the ground quite as effectually as have similar expectations on previous occasions. This was, of course, what conservative physicians

and surgeons who knew the conditions and who realized the possibilities had expected, though they would only too gladly have been disappointed in this particular case. In the meantime, the sensational announcement of the cure supposed, has gone forth to work harm and to raise false anticipations surely doomed to disappointment.

There is also another feature of the case that is interesting. Not long after this cure was announced, there came news from Europe that the price of radium had advanced. Only a very minute amount of the metal in its pure state, somewhat less than one-half ounce, it is said, is available for any purpose whatever. It was declared that so many demands were made on this small amount for the various purposes of experimental research that the supply did not equal the demand, and a rise in price was the consequence. There are good grounds, however, for saying the stock of radium now on the market is in the hands mainly of a few persons, and that to use the familiar phrase, there is a corner in it. Not only this, but it is said that the sources of radium consisting mainly of various forms of pitchblende found in Central Europe, are all now practically controlled by a few individuals who have a commercial understanding in the matter.

It has been extremely interesting to note how much of free advertising has been given this commercial combination, because of the sensational character of the recent news item. That the whole thing has been worked up very well there is no longer any possible doubt. Whether the effort to create a new market for radium will be successful or not must depend upon further experiences. It is well, however, for physicians to realize just how this set of incidents hangs together and just what the significance of much of the newspaper comment really is.

Unfortunately the failures of the new method of treatment will never attain as wide publicity as the original announcements and so medical quacks will have the opportunity to play upon the feelings of sufferers and pretend to use radium as a curative agent, when some other quite harmless material is being employed. One conviction for the use of a simple solution of cinchona, instead of radium, has been obtained in New York. As it is extremely difficult to obtain radium now, it would seem as if to secure further convictions along this line, in cases where false pretenses of its use are attempted would be easy.

ECHOES AND NEWS.

NEW YORK.

Filtering the City Water.—Dr. Darlington advocates the filtering of city water, and has recommended to the Mayor that the city install a plant for that purpose.

Death-Rate Down Again.—The deaths in this city last week numbered 455, as against 639 the week before, and the death-rate was 20.68 against 28. For the corresponding week last year the rate was 20.66. Deaths from heart disease were again normal. The number of deaths from sunstroke fell from 151 to 27, while cerebrospinal meningitis, with 10 deaths, was at its lowest ebb.

Mr. Straus Reads a Paper.—At the recent meeting of the British Medical Association, Mr. Nathan Straus, of this city, read a paper on the need of milk for infant feeding in large cities and told what had been accomplished by his milk depots in New York. The paper created considerable interest among those who heard it, and will be published in the *British Medical Journal*.

Yellow Fever Precautions.—Although repeatedly assuring the public that there is no chance of yellow fever getting a foothold in New York, Dr. Doty makes assurance doubly sure by rigid inspection of all ships from southern ports, and the detention of any persons found with high temperatures. Numbers of such persons have been found on several ships from Gulf ports and from Central America, but none have developed the fever.

Fresh Air Charities.—Health homes, seaside cottages, floating hospitals, and children's summer homes have been filled to overflowing during the hot weather with poor women and their sick infants. During the recent hot wave the Children's Aid Society sent above 3,000 women and children to the seaside or to the country. There will be six weeks more of summer heat and suffering. The Children's Aid Society relies on the dwellers of this city for continued contributions. Checks may be sent payable to A. B. Hepburn, Treasurer, or C. Loring Brace, Secretary, at 105 East Twenty-second Street.

The President Visits Sea Breeze.—On July 29, President and Mrs. Roosevelt visited the Sea Breeze Home for the fresh-air treatment of children suffering from surgical tuberculosis. They came from Oyster Bay in the Sylph, and went ashore without any salute or other demonstration, as they wished to pay a quiet visit to the children. All the little patients who were old enough to know what was happening were delighted with the honor paid them, and the President's party went away enthusiastic about the work being done there. Mr. Roosevelt said: "The hospital has room for only 45 children, and there are more than 4,000 cases of bone tuberculosis in the tenement house district of New York. The trustees are trying to raise a fund for a hospital which shall hold 400 patients. The Fresh Air Fund people are obliged to refuse admission to 2,000 or 3,000 applicants annually. I was immensely impressed by the work being done there. I feel that there can be few more beneficial works than that which is being accomplished both in connection with the Fresh Air Fund and this seaside hospital for tenement children suffering from bone tuberculosis."

A Novel Port Boat.—The port of New York will have as part of its public equipment, at an early date, a craft mainly for hospital purposes, the counterpart of which does not exist anywhere. The boat is mainly

designed for the work of transporting sufferers from contagious diseases to the hospitals at North Brother Island, and for this service the craft will have the most modern appliances that science can suggest, at the same time it will be fitted out with powerful pumps, and it is hoped that it will prove a great factor in the extinguishing of fires along the river fronts. It is also intended that the boat shall be used as a water-carrying craft, having a tank capacity sufficient to supply any of the public institutions located on the islands of the New York harbor in the event of an accident to the pipes affording the present source of supply. The new boat will be known as the Claudine, and will be 126 feet long and 30 feet beam. The hospital section will be on the main deck and will consist of eight rooms, each liberally endowed with windows. These rooms are laid out in such a manner that it will be possible to reach any one of them without passing through any of the others, thus preventing the spread of contagion as well as avoiding the disturbance of patients. On the upper deck will be quarters for convalescents and visitors, nurses and doctors attending patients on the boat, patients being returned to the city as cured, and an office for the physician in charge. A morgue will be located in the bow of the boat on the main deck. All of the rooms are of steel, and may be closed up as tightly as a steel box, to permit of being thoroughly disinfected when occasion requires. In the finishing of the interiors, all angles of shelves which might afford lodging places for dust and germs are eliminated. The pumping facilities of the craft in case of fire will be considerable, but in addition to this there has been left a clear space on the deck large enough to accommodate a city fire-engine, and in case of an emergency such an apparatus may be loaded on board and transported to any part of the harbor. The Claudine will be fitted with twin screws and will have a speed of fifteen knots an hour; the boat will be of light draught so that it will be possible to navigate in any part of the harbor. The new craft will represent an expenditure of $70,000. This boat is being built on Staten Island, and will be launched in a short time.

PHILADELPHIA.

Application for Hospital Charter.—Having conducted Roosevelt Hospital, 1815 Frankfort avenue, as a private enterprise for some time, Dr. Franklin Brady has now made application for a charter to make the institution a public hospital. Dr. Brady's associates are Charles Glanz, 1025 Market Street; Henry C. Kellner, 301 East Girard Avenue, and Amos Brady, 2009 North Thirteenth Street.

Fear of Outbreak of Typhoid Fever.—Since the change in the source of the water supply the residents of Holmesburg and the vicinity have taken extra precautions to avoid an epidemic of enteric fever. The water supply until recently was taken from Sandy Run, but since the Holmesburg Water Company merged with the Disston Water Company it is obtained from the Pennypacker Creek, which the residents say is polluted. Chief Medical Inspector A. A. Crains, without taking the change in the source of the water supply into consideration, tried to allay their fears by telling the residents that until the present time fewer cases of enteric fever have been reported from the section of the city in question than any other.

To Guard Philadelphia Against Yellow Fever.—Since the news of the outbreak of yellow fever in New Orleans has reached this port rigid quarantine has been established. Inspectors have received strict orders to examine every vessel regardless of the place from which it hails, but especial attention must be paid to those coming from Panama, Southern ports and India. Drs. Horning and McCool were instructed to hold vessels should any of the passengers or crew show the slightest symptoms of the disease. Dr. Henry D. Heller, State Quarantine Physician at Marcus Hook Station, feels confident that no cases will pass the scrutiny of his deputies. He believes the station of this State could scarcely be improved, and is prepared to combat the disease should any cases show themselves.

New Bids for the Municipal.—From his investigations Mayor Weaver has discovered that "graft" found its way into the letting of the bids for the new Municipal Hospital. Apparently there were two firms bidding, but in reality only one, because on one of the contracts the one firm bid low and the other high, while on the second contract the one bid high and the other low, so that each firm had its purpose pretty well "cornered." Then, too, each contract was so let that the work would not be completed because it was alleged that the city did not have enough money at the present time to complete the work. According to the plans arranged by the former Director Smyth, the Mayor said the new hospital would have cost $3,000,000. Everyone is at a loss to know why the Department of Public Safety let the bid for the construction of the hospital instead of the Department of Health. If Mayor Weaver finds, as announced, that the funds are insufficient nothing will be done until finances will permit; then new bids will be let to complete the hospital.

To Determine the Sources of Pollution in the Schuylkill River.—Working cooperatively, Health Commissioner Dixon and Director Martin have instituted searching parties on the Schuylkill River to determine if possible places which are sources of pollution. Dr. Dixon's party began at Reading and came down the river, while Director Martin's party began its search at Philadelphia and worked up the stream. The small tributaries of the river will be explored, notes taken and then a complete report will be sent to the Department of Health. From previous inspections, Phœnixville is regarded as an especially dangerous point, while Pottstown and Mill Creek are also thought to be menaces to the health of Philadelphia. Attention will also be paid to villages and to farm houses along the river; if refuse, now thrown in the stream, can be burned just as easily, those responsible for such acts will be asked to burn it. The State Department of Health will treat the Allegheny River in a similar manner, although this stream is in a better condition than the Schuylkill River.

War Upon Flies and Insects.—At the meeting of the Board of Health of Philadelphia the following resolutions were adopted: Resolved, That the chiefs of the divisions of nuisances, milk and meat and cattle inspection are hereby directed to visit all retail dealers exposing for sale in front of their properties meats, fish, vegetables, fruits, candies and cake, and to instruct the proprietors that covering of some suitable material must be provided to protect the goods so exposed from flies and insects generally. Resolved, That the chief medical inspector, nuisance, milk, and meat and cattle inspectors be and they are hereby directed to instruct the inspectors connected with their respective divisions to inspect regularly all manure pits of all stables, private or livery, that exist in their districts, and to give instructions to owners or keepers thereof that stables and pits must be kept in clean condition, and where the pit is on the exterior of the premises it must be kept tightly closed or screened with wire. If a stable is connected with the premises they

visit an inspection must be made and a report made to the chief of the division, who in turn will report to the chief of the Bureau. The assistant medical, nuisance, milk and meat inspectors will visit all places designated in the resolutions and will make a thorough inspection of the establishments referred to therein, as well as direct the owners or agents that they will have to comply with the new regulations.

CHICAGO.

Enlargement of Hospital at Fort Sheridan.—An addition to the Post Hospital at Fort Sheridan, which will cost approximately $19,000, and will contain two wards for contagious diseases, with a capacity of 36 beds, has been begun.

State of Chicago's Health.—According to the weekly bulletin of the Health Department for July 29, public-health conditions have again become normal. There were 109 fewer deaths reported during the week than during the previous week and the annual rate of 13.57 per thousand is 17.3 per cent. less for the week and 15.5 per cent. less than the average July rate of the previous twelve years. This average was 16.06 per thousand, the highest having been 26.94 in 1893 and the lowest 14.34 in 1900. The rate for the twenty-nine elapsed days is only 13.16 and the month promises the lowest July rate on record. A larger proportion than usual of samples of milk and cream were found below grade during the week. So far as the inspector's samples are concerned this was due to work in the Polish district. Six unvaccinated children, all under ten years of age, were removed to the Isolation Hospital. This is the lowest number of smallpox cases in any week since last fall. There are 47 cases remaining in the hospital; no death during the week and no case so serious as to make a fatal result probable.

Crime in Chicago.—City Statistician Hugo Grosser made public a day or two ago his figures for the first quarter of 1905, and Prof. John A. Fairlie, of the Department of Administrative Law in the University of Michigan, said that the report of the police department's activity, given in detail under a system devised by Mr. Grosser, was of great sociological value. The report shows that the greatest number of arrests of men and women were for larcenies, and that white Americans led the list, with colored Americans second. The total number of charges of larceny preferred were 1,310. Of violations of the city ordinances there were 8,892, of which white American men were credited with 4,733; white American women with 541; colored men, 505; colored women, 134; Germans, 531; women, 48; Polanders, 495; women, 52. Three American women and two of other nationalities essayed the confidence game and 10 women of all nationalities were accused of burglaries. Only one man was arrested during this period for selling liquor to minors or drunkards. Married men and women, according to the statistician, are more law-abiding than those unmarried, the score standing 8,359 single men, and 951 single women to 3,593 married men, and 536 married women. There was a decrease in the total number of arrests as against the same period last year, but an increase in the arrests for felonies.

GENERAL.

Panama in Tuberculosis Congress.—Dr. Ciro Urriola has been appointed to represent Panama in the international tuberculosis congress, which will meet in Paris next October.

Cholera Epidemic in India.—A serious epidemic of cholera prevails among the refugees from the famine-stricken districts of British India, who have been crowding into Madras for weeks past. Numbers of victims have been found dead or dying on the streets. The death-rate is 89.7 per 1,000.

Dr. Woods Hutchinson Removes.—During the past three years Dr. Woods Hutchinson has been a resident and practitioner in Portland, Oregon. Hereafter, however, he will be located at Redlands, Cal., as Consulting Physician to the Arrowhead Springs. Dr. Hutchinson will also lecture at the Medical Department of the University of Southern California, located at Los Angeles.

Cases of Yellow Fever Outside of New Orleans.—Cases of yellow fever have been reported in Louisiana at Bunkie, Bayou Goula, Shreveport, and Point Barrow. A single case occurred at Tampa, Fla., and one at Lumberton, Miss. All the patients were Italian refugees from New Orleans, and so far the disease has failed to get further foothold outside the infected city.

Typhoid Fever Spreads.—The epidemic of typhoid fever which is raging in the Bath Beach and Fort Hamilton sections of Brooklyn is said to be due to the improper sewerage and to bathing in the polluted waters of the lower bay. Physicians are greatly alarmed over the increased typhoid fever cases in that section. At Bay Ridge great concern is felt over a threatened epidemic, which the physicians have been fighting for several weeks. Polluted water is blamed for the conditions there.

Heavy Death-Rate.—Thus far the death-rate in New Orleans of the discovered cases and recorded deaths is almost 25 per cent. heavier than it was even in 1878 and approximating the percentage of 1854, the latter the worst yellow fever attack New Orleans has ever experienced. This is explained by the health authorities on the ground that the disease has existed almost entirely among Italians—and that among a class very ignorant, very suspicious, and very filthy. They have insisted, whenever not watched, in eating macaroni and bananas the minute the fever had passed, and have frequently dropped dead in consequence.

Menace to Oyster Industry in New Jersey.—Planters of the Shrewsbury oyster are aroused over an attack upon their industry. The State Board of Health has notified the Shrewsbury township health board of the danger arising from the practice of certain persons who empty their sewage into the north and south branches of the Shrewsbury River, particularly the South Shrewsbury. It is stated that the pollution of the water injuriously affects clams and oysters. Claim is made that an outbreak of typhoid at Oceanic was caused by the use of clams taken from the South Shrewsbury. The township board is advised to prohibit the sale of shellfish taken from that river.

Suffering from Quarantine.—New Orleans is said to be suffering more from the erratic quarantine arrangements of her neighbors than from the fever itself. These shift from day to day, and nearly every town has a different quarantine. Besides the local restrictions against the city, the fact that the fruit trade has been diverted to other ports by the detention ordinances issued by New Orleans has worked much hardship among the Italians, some 2,000 of whom were employed exclusively in handling such cargos. Considerable indignation is also manifest against Gov. Vardaman, of Mississippi, who insists on measures the most stringent between the two States.

Yellow Fever on the Isthmus.—Reports from the Isthmus continue to give additional cases of yellow

fever and occasional deaths, but the fact that no widespread epidemic occurs would indicate that the prophylactic measures taken there are successful in a degree at least. John Barrett, formerly Minister to Panama, and now Minister to Colombia, declared last night that the yellow fever would be driven out of the Isthmus. "The fight against yellow fever is like a great battle," he said. "Every effort is made to stamp out the disease. The people of the United States must not be impatient if the progress of the canal is slow. They must remember that the scene of operations is 2,000 miles away from the base of supplies."

Mosquito Pest Nearly Conquered.—Destruction of mosquito larvæ by petroleum and the weeding out of shrubbery in moist places where the insects breed at various summer resorts have made those places pleasant to live in where in former seasons patrons of hotels and residents of cottages were disturbed till they were made frantic by myriads of the pests. Reports from various points in New Jersey and Long Island prove that the mosquito is nearly conquered. Southampton and Babylon are freer than in twenty years past. All small streams and creeks about Lawrence and Cedarhurst, and those about the Rockaway Hunt Club, were thoroughly cleaned during the last spring, and the frequent use of oil, sprayed on mud flats at low water, has brought about the absence of the pests. At Spring Lake, N. J., notable work by the Board of Health and citizens shows that these efforts have been successful. The reclamation of low lands in the immediate vicinity of Atlantic City and the filling in of old cisterns and stagnant pools have practically stopped the mosquito from breeding there. The only invasions from which the resort suffers from these pests come when the land breeze blows them in from the country.

The Yellow Fever Situation in New Orleans.—The first days of the present month found New Orleans with a record of 79 deaths from yellow fever, and a total of 378 cases, all but twelve occurring among Italians, and all but one among the poorer class. All things considered, there is a disposition to take an optimistic view of the situation. The fever has not spread as rapidly as had been feared, in view of the quarter where it broke out and the length of time elapsing between its first appearance and its detection by the health authorities. It is believed now that all concealed cases have been discovered. Surgeon-General Walter Wyman, of the Public Health and Marine Hospital Service, returned to Washington at the first report of the fever to take charge of the situation, and the department has some of its best men in New Orleans. Surgeon White is in charge. The city as a whole responds enthusiastically to appeal for systematic prophylaxis, and the work of exterminating the *Stegomyia* and its breeding places is progressing rapidly. "We are fighting," said one of the business men, "to do more than simply save a few lives just now. We are fighting to kill the bugbear of quarantine that has checked every proposed development of the city's commerce. We are going to show that yellow fever can be stamped out."

American Association of Obstetricians and Gynecologists.—The American Association of Obstetricians and Gynecologists will hold its eighteenth annual meeting at the Hotel Astor, Longacre Square, New York, Tuesday, Wednesday and Thursday, Sept. 19, 20 and 21, 1905. Dr. Robert T. Morris, 616 Madison Avenue, Chairman, Dr. Samuel W. Bandler, 229 West Ninety-seventh Street, and Dr. James N. West, 71 West Forty-ninth Street, constitute the local committee of arrangements, one or all of whom will gladly furnish information to members and guests upon application. The following is a list of papers offered up to the present date: The President's address, by Howard Williams Longyear, of Detroit; title to be announced, J. H. Carstens, of Detroit; title to be announced, Magnus A. Tate, of Cincinnati; Personal Experience in Hysterectomy for Myofibroma of the Uterus, by Miles F. Porter, of Fort Wayne; title to be announced, J. W. Hyde, of Brooklyn; Diagnosis, by John B. Deaver, of Philadelphia; Treatment of Procidentia Uteri, by H. E. Hayd, of Buffalo; Perineal Injuries and Methods of Repair, by Joseph Price, of Philadelphia; title to be announced, H. C. Pantzer, of Indianapolis; Appendicitis as a Factor in the Diagnosis of Abdominal and Pelvic Diseases, by Rufus B. Hall, of Cincinnati; title to be announced, W. A. B. Sellman, of Baltimore; Indications for Hysterectomy in Puerperal Eclampsia, by Charles G. Cumston, of Boston; title to be announced, Edwin Walker, of Evansville; title to be announced, John Young Brown, of St. Louis; Papillary Cystadenoma of the Breast, by Edward J. Ill, of Newark; Normal Saline Solution and its Application to Conditions, by Walter B. Dorsett, of St. Louis; Colon Bacillus Leucorrhea, by Robert T. Morris, of New York; Gall-stones in the Cystic Duct, by L. H. Dunning, of Indianapolis; title to be announced, O. H. Elbrecht, St. Louis; Pelvic Infection —Etiology, Routes of Invasion, Pathologic Changes and Clinical Courses, by John B. Murphy, of Chicago; Surgery of the Liver, by William J. Gillette, of Toledo; The Treatment of Puerperal Eclampsia, by E. Gustav Zinke, of Cincinnati; The Evolution of the Anterior Transplantation of the Round Ligaments for Uterine Displacements, by A. H. Ferguson, of Chicago; title to be announced, H. Howitt, Guelph; Myomectomy, by W. P. Manton, of Detroit; title to be announced, Thomas B. Eastman, Indianapolis; Extraperitoneal Pregnancy; Three Cases of Prolonged Gestation; Operation by Marsupialization; Recovery, by Charles A. L. Reed, of Cincinnati; title to be announced, F. F. Simpson, Pittsburg; title to be announced, L. S. McMurtry, Louisville; Some General Principles in Conservative Pelvic Surgery, by J. F. W. Whitbeck, of Rochester; title to be announced, Charles L. Bonifield, Cincinnati; title to be announced, John D. S. Davis, Birmingham; title to be announced, X. O. Werder, Pittsburg; title to be announced, B. Sherwood Dunn, Easton; Observations Respecting Treatment of Face Presentations, by A. P. Clarke, of Cambridge; title to be announced, C. C. Frederick, Buffalo. All members of the medical profession are cordially invited to attend the scientific sessions. Howard Williams Longyear, President; William Warren Potter, Secretary.

OBITUARY.

Dr. WALTER I. BRADBURY, of Boston, the physician in charge of the State bath house, Nantasket Reservation, Nantasket Beach, Mass., was drowned while bathing in the surf on July 31.

Dr. GEORGE B. WOODSIDE died at New Harbor, Maine, July 28, where he was shot on Tuesday by Arthur, the fifteen-year-old son of Joseph McFarland, of Charlestown, Mass. Young McFarland, who was passing a vacation at New Harbor, was discharging a revolver, when the physician, driving by, received a bullet in the right temple.

SOCIETY PROCEEDINGS.

THE AMERICAN MEDICAL ASSOCIATION.

Fifty-sixth Annual Meeting, held at Portland, Oregon, July 11, 12, 13 and 14, 1905.

SECTION ON PRACTICE OF MEDICINE.

SECOND DAY—JULY 12TH—*Continued.*

(Continued from Page 233.)

SYMPOSIUM ON ANIMAL PARASITES AND TROPICAL DISEASES.

Amebic Dysentery in the Philippine Islands.—Dr. W. E. Musgrave of Manila, P.I., discussed the symptoms, diagnosis and prognosis of dysentery of tropical character due to the ameba. Dr. Musgrave said that the most important period of the disease is that in which it is latent. In a number of cases the ameba is present in the intestines for a long period, causing only vague intestinal symptoms, and then, under favorable conditions, lighting up severe and sometimes even fatal dysentery. The absence of diarrhea is one of these features of these cases. This latency may represent an incubation period, but it seems much more likely that it should be considered the first stage of the disease in which the lesions are high up in the colon and give no dysenteric symptoms. Such affections may be dangerous and death has occurred after only a few days of acute symptoms, apparently a fulminant case of the disease.

High Localization.—The most prominent feature of these latent cases is the fact that the ameba causes its lesions only in the ascending and transverse colon and in the cecum. The symptoms then are pain and tenderness, referred to the course of the colon. No ameba is found in the stools unless a hydragogue cathartic is given. The absence of the ameba does not make a negative diagnosis of amebic dysentery. In the case of a young married woman seen recently the only symptoms were those of general lassitude, and there was absolutely no diarrhea. After a cathartic was given amebæ were found abundantly. Two months later some discolored blood occurred, and it was evident that ulcerative stage of the disease had been reached. Under injections there was improvement, and then there was diarrhea after an interval during which she was not treated owing to absence in Japan. Ten months after the amebæ were first seen sudden dysenteric symptoms developed, and the patient died in three days. At the autopsy old ulcers were found in the upper colon from which there had been a sudden general infection of the intestines.

Cure Without Treatment.—The Philippinos themselves evidently have amebæ in their intestines for many years without serious symptoms. Not infrequently healed ulcers are found at autopsies late in life, showing that the disease can be spontaneously cured without active treatment. Frequently death takes place from inter-current disease, and then the ulcers are found present in the cecum and transverse colon. When treatment is instituted early liver abscess occurs very rarely. In fact, American physicians have been surprised at the few liver abscesses that have occurred in cases under their care. Dr. Musgrave himself has not seen a single case of liver abscess in a thousand patients treated by him.

Diagnosis.—The diagnosis of the disease must be made, if possible, with the microscope. The clinical picture is helpful, but may deceive. Abdominal soreness along the course of the colon is singularly the most valuable symptom. In early stages of the disease this soreness is likely to be localized over the cecum and the lower part of the ascending colon. Nausea and indigestion are dubious symptoms, though loss of weight while patient maintains a good appetite must always excite suspicion, especially when the patient has recently come to the tropics. Early treatment is the most important thing for the disease; for in cases treated early no infection of the liver takes place. According to statistics, 20 per cent. of untreated cases develop liver abscess. When there is any doubt salts should be given freely and the stools carefully examined. Castor oil and the use of enemata for diagnostic purposes are not likely to be of much service. The speculum is helpful only when the lesions are in the rectum and lower bowel.

Prognosis.—The prognosis cannot be lightly made. There must be careful weighing of all the conditions. If the latent period of the disease has existed for a long time, then the prognosis is bad. In young adults recently affected the prognosis is always good. The children of the natives recover without treatment. To wait until blood and mucus occur in the stools always adds to the seriousness of the prognosis. Prompt treatment by injections is not only effective for symptoms, but prevents complications.

Pathology and Etiology.—There is no doubt now that this form of tropical dysentery is due to the presence and the pathological activity of the ameba. There used to be some doubt about this, but it has disappeared under the continued investigations. The ameba as a normal inhabitant of the intestine does not occur under ordinary circumstances. The walls of the gut under the influence of ameba become thickened and edematous. The first lesions seen are punctate in form, and capillary hemorrhages may be present. After this comes an erosion of the superficial layers of the mucous membrane. Sometimes the organism penetrates through the epithelial layer without producing any lesion and is found lying on the basement membrane. The distribution of the ulcers is rather characteristic, and is not entirely limited to the colon. Ulcers have been found in the ileum as much as 40 cm. above the valve. Not infrequently the cecum is found nearly covered with ulcers, and then the appendix is also sure to be affected.

Importance of Latent and Early Mild Cases.—Dr. George Dock, of Ann Arbor, Mich., said that Dr. Musgrave has thrown more light on the diagnosis and pathology of amebic dysentery than any other investigator. The importance of calling attention to the latent and early mild cases cannot be overestimated. These cases are entirely free from dysenteric symptoms, no amebæ are to be found in the stools, no blood even altered in character is passed, and yet amebic dysentery exists. If an ounce of Carlsbad salts be given the amebæ may be found in the stools. It is sometimes thought to be difficult to find the ameba, but salts will always bring it if it is present and no warm stage is needed on the microscope for its recognition. The stools should be received in a flat porcelain vessel, and then suspicious portions may be picked out.

Vigorous Treatment.—Dr. Dock has seen a number of cases of returned soldiers who had served in the Philippines. The affection is easy to stop after beginning, but difficult of treatment later on. Vigorous catharties form an important part of the treatment. Large injections should be given, and Dr.

Dock has found strong salt solution almost as good for this purpose as the silver enema, which is so often recommended. It is important that patients should not be allowed to become constipated. Ipecac is useful in many cases, and may be given with salol with excellent effect. In one case Dr. Dock gave thymol for uncinaria. Amebæ were also present, and disappeared at the same time. It must not be forgotten amebic dysentery may occur in cold climates, and is by no means limited to the tropics, and that a number have now been reported in many parts of the country in patients who have never lived outside of the United States.

Dr. Williams, of San Francisco, said that in a number of cases that he had seen during a residence in the Philippines, one striking feature seemed to be that liver abscess did not occur so frequently in women as in men.

Dr. Shattuck, of Boston, said that he had one patient under observation, suffering from true amebic dysentery, with many amebæ in the stools, who had never lived out of New England. The disease, then, is not essentially of the tropics, and it is probable that many cases are being missed in various parts of the country, and that the dysentery is considered to be due to other causes.

Sudden Death in Amebic Dysentery.—Dr. Claude A. Smith, of Atlanta, Georgia, related the case of a patient admitted to the hospital suffering from severe dysentery, in which death took place on the day after admission, and before any definite study of the condition could be made. At the autopsy a large number of old amebic ulcers were found, besides a fresh infection extending along most of the colon. It seems not unlikely that some of the sudden deaths that occur in hospitals elsewhere may be due to this affection. It emphasizes the necessity for careful study of the intestines of all cases of sudden death.

The Ameba in Manila.—Dr. Musgrave said that the ameba occurs in the water of Manila. Occasionally these amebæ in water are supposed not to be pathogenic. Whenever amebæ found in the stools contain red blood cells it seems not unlikely that they are pathogenic, though this has not been definitely settled as yet. An ameba that seemed to be non-pathogenic after passage through the monkey was found to contain red blood cells. Later, however, this ameba seemed to revert to its orinigal less harmful condition. The most important thing about amebic dysentery is that it may be cured completely if well and early treated. So far Dr. Musgrave has had no recurrences in his cases. The large number of Philippinos that come to autopsies with scarred bowels indicate that there may be recovery from the disease even without treatment, and that, therefore, the outlook is hopeful. Dr. Musgrave has seen ameba occurring in the stools of what was considered to be a normal bowel, but always later the development of the case showed that lesions were present.

Infection in Uncinariasis.—Dr. Claude A. Smith, of Atlanta, Ga., discussed the mode of infection in this disease, and exhibited lantern slides of certain experimental demonstrations of the infection through the skin by means of this parasite. Dr. Smith said that the uncinariasis is one of the most common diseases in the South, though its presence has not been suspected until recent years. In country districts particularly the parasites occur very frequently in the stools, and as there is no proper disposal of sewage, opportunites for infections are frequent. The larvæ of flies burrow in the stools, and so produce avenues of entrance for oxygen, in the presence of which the eggs of the parasite develop very rapidly. This combination of two insect pests is not uncommon in nature, and the mode of life of one seems to be calculated to help the other.

Investigation of Stools.—If enough soil be added to the stool to destroy the odor, this supplies enough oxygen to enable the eggs to develop well. Under these circumstances the larvæ of this parasite develop very rapidly and in large numbers. If kept in a deep jar they climb up the side and evidently develop a considerable range of movement. This shows that the larvæ might also climb up on grasses and vegetables and perhaps produce infection in the intestinal tract of persons consuming these substances. As none of the animals are liable to this disease, however, so far as investigation has gone, cannot be considered to be important.

Experimental Demonstration of Infection.—Dr. Smith found that a large proportion of moisture is necessary to have the larvæ develop well and actively. At certain seasons there is not enough moisture, and consequently infection is rare. When a certain amount of fecal matter containing enough soil to make it inodorous, but containing a large number of uncinaria larvæ, was applied to the back of the wrist of an individual who offered to undergo the experiment, infection occurred. For six days the material containing the larvæ were placed on the patient without any effect. On the seventh day, however, he complained of itchiness and irritation. This developed into a stinging sensation. The material was allowed to remain for an hour, and then the spot beneath it became red and hyperemic. After twenty-four hours some swelling was noticed and this swelling extended also to the back of the hand. After the hyperemic stage vesicles formed and the edema became marked.

Infection of the Intestines.—For several days the area of irritation on the back of the wrist was allowed to remain untreated, and then was treated just sufficiently to prevent itchiness. Six weeks after the placing of the infected material on the back of the wrist the eggs of the parasites were found in the stools. After a time the patient demanded treatment, as he was losing weight, and then some 1,300 larvæ were found in his stools. It is evident that this very extensive infection occurred entirely from the irritated patch on the back of his wrist.

Ground Itch and Infection.—It is evident that uncinariasis occurs as the result of infection through the skin, and it seems not unlikely that this is the only method of infection. Children in country districts who go barefoot become infected, and then by scratching spread the infection. Secondary infection with bacteria occurs, and this seems to favor the progress of the previous parasite. After some weeks there is disturbance of digestion, and the whole clinical picture, due to the presence of the parasite, develops. Fortunately the weather in north Georgia favors infection only at two periods of the year—in the late spring and early fall, when there is a moisture with sufficient warmth. In south Georgia the opportunities for infection are more frequent, and the disease is consequently commoner.

American Achievement in Disease Eradication.—Dr. Richard Cabot, of Boston, the Chairman of the Medical Section, then said that there were two great achievements in medicine effected since the Spanish-American war, of which Americans may well be

proud. Cuba has been freed from yellow fever, from which the island had been a sufferer for four centuries. American physicians are engaged in the work of freeing Porto Rico from the anemia due to uncinariasis, which has been a scourge of the island for as long almost as history runs. Two physicians particularly, Drs. Ashford and King, are engaged in an active campaign against this disease. They travel around with a hospital equipment of tents, camp outside of a town, and are practically treating a whole people. Those who suffer from the severer forms of the disease are taken directly into the hospital tents, while those with less severe symptoms are given the remedies for use at home. Their work illustrates what may be accomplished even when a disease is so endemic as this anemia of Porto Rico is, and shows that modern advance in medicine can accomplish wonders. Only the work of Reed and Carroll, in the investigation of yellow fever, seems to be of equal importance to this.

Uncinariasis in California.—Dr. Brown, of San Francisco, said that there are three classes of cases who suffer from this disease in San Francisco. The first class consists of Mexicans, some poor, but some of the better classes. The second class are soldiers who served in the tropics, were discharged without symptoms, and yet have later developed signs of the disease. The third class consists of Porto Ricans who were sent to Honolulu in order to replace Japanese laborers, but who did not succeed as was expected. In the cases seen in San Francisco one of the most significant features is the seriousness of the symptoms that may develop, yet with very few parasites present. In one case only seven parasites were found, and yet a nearly fatal anemia had occurred. Among the Porto Ricans in San Francisco it is noted that no infection occurs among the children, so that it seems probable that only a cutaneous mode of infection brings the disease into the system.

Modes of Infection.—Dr. Smith said that it is not as yet decided whether there is some other mode of infection besides that through the skin. In answer to a question he replied that the parasites seem to travel from the point of entrance into the system through the veins. In his experimental observations some of the veins for a distance around the area of inoculation became reddened so that red streaks were present. These resembled phlebitis, however, and there was no infection of the lymphatics. In the blood stream the parasites pass through the lungs and heart, and so find their way to the intestines. In the South, during the summer time, outside of the cities all of the children of both rich and poor go barefoot, hence the frequent possibility of infection. It is reinfection, however, oftener repeated, that leads to the severe symptoms of the disease. City children of vigorous constitution recover from a single infection. Country children are infected over and over again, until they develop anemia of a severer type.

Course of the Disease.—It is often said that as children grow older in the country they outgrow their tendency to this anemia. As a matter of fact, however, what happens really is that they begin to wear shoes, and then there are no further infections, and their resistive vitality overcomes the disease. It is a mistake to consider that children suffering from the disease are necessarily either lazy or stupid. They may indeed be very bright. They are not able to do severe manual labor because their anemia prevents them from carrying sufficient oxygen to enable them to take muscular exercise to any extent. One of the students of the Medical School, in Atlanta, though a sufferer from the disease in a severe form, led his class, and was one of the brightest students. Before studying medicine, he had taken all the prizes in the High School.

Third Day—July 13th.

Symposium of the Stomach.

Physiology of Nutrition.—Dr. Frank Billings, of Chicago, said that a recent investigation seems to make clear that there has been too high a standard of the amount needed for the balance of nutrition in human beings. This standard has been too high, especially with regard to the proteids. These are the materials that are obtained from meat, eggs, fish, peas, and beans, and the like. Proteid material is used for tissue building, while the carbohydrates and fats are consumed as the fuel of the body in order to supply the energy necessary for the work done. When too much proteids are consumed they are changed into crystalline substances in the circulation which have a somewhat toxic action and cause irritation when excreted. The fats and carbohydrates do not produce any such harmful results, and only lead to an undue accumulation of material, but without irritation.

Instinct and Appetite.—How far instinct can be left to guide us in the selection of food and the amount taken has always been a question. Tradition seems to indicate that instinct can be trusted. There has long been an impression, however, that mankind, where it can obtain it, eats too much, and especially too much meat and similar material. Dr. Chittenden, of Yale University, undertook an investigation of nutrition, with the idea of determining how much proteid material was necessary in order to maintain bodily equilibrium and full strength and not have any expensive waste. As the result of his investigations he found that much less proteid material was needed than has so far been considered necessary. His attention was attracted to this subject by the suggestions of Fletcher, who has shown that if mastication were more complete, and the food was brought more intimately in contact with the palate, then there was less appetite for and less consumption of proteid foods.

Conditions of the Experiment.—Dr. Chittenden took three classes of persons for his experimental observations. The first were five members of the faculty of Yale University—men of sedentary habits and mental occupations. The second group consisted of athletes, many of them the best athletes in Yale University, whose diet could be regulated for the purpose. These represented a group doing intense labor and using up muscular substance. The third group consisted of United Stated soldiers detailed for the purpose, who were also given regular exercise in the gymnasium, and represented people who take an ordinary amount of exercise. Careful observation of these three groups under the ordinary diet for three months, and then on a diet in which there was considerably less proteid material than before. It was found that the balance of healthy nutrition could be maintained with scarcely more than one-half the proteids originally consumed.

Creatinin as the Criterion of Nutritional Equilibrium.—In these experiments it was found that while there was a reduction in the amount of nitrogen

excreted this did not affect all the elements of excretion to the same degree. The amount of urea in the urine was markedly decreased. The amount of ammonia nitrogen was relatively increased. The amount of creatinin nitrogen was relatively increased, but remained essentially the same during the changes of diets. The uric acid nitrogen was diminished, though relatively increased, and evidently corresponded with the excretion of urea. It would seem then that the creatinin represents the criterion of metabolic equilibrium. Folin has found that the extra material of proteid character that is absorbed from the stomach is not oxydized, as was once thought, but is hydrolized, and then passes out through the kidneys. It thus serves only as an irritant, and does no good at all in the system.

The Overeating Habit.—There seems to be no doubt that practically every one eats more proteid material, that is, more meat and similar solid substances, than is necessary. The irritation produced by this useless material can be noted in various painful conditions of joints and muscles, usually spoken of as gouty or rheumatic. In Professor Chittenden's experiments it was noted that when less proteid material was consumed there was much less complaint of these pains, and, indeed, the subjects of the experiments had a sense of well-being not previously possessed. The limitation of diet leaves an absolutely free choice, especially as regards the fats and carbohydrates, and only affects the amount of proteids, reducing it by one-third.

Study of the Gastric Contents.—Dr. George Dock, of Ann Arbor, Mich., said that the study of the chemistry of the gastric contents has unfortunately been neglected. It is sometimes thought to take too much time and require much apparatus. This is not true, however, and the chemistry of the stomach may be studied with very simple means at hand. Some physicians fear that they will not be able to pass the stomach tube properly and with ease. In many thousand cases, however, Dr. Dock has only failed twice, and in both of these he did not have a proper oportunity to use his persuasive powers on the patient. The usual trouble is that there is a lack of training with regard to this investigation of the stomach, and physicians hesitate to take it up for themselves later. There has been much disappointment because the study of gastric chemistry does not give any pathognomonic signs, but this is only what may be expected, since it is becoming more and more realized that it is careful study of all patient's symptoms, and not any one, that enables the physician to make the diagnosis.

Ordinary Reactions.—It was unfortunate that in the early days of the study of the chemistry of the stomach that the announcement was made that hydrochloric acid was absent in cancer. In a large proportion of cases this remain true, but in many cases hydrochloric acid may be found all during the course of gastric cancer. It may even be present in excessive amounts of gastric cancer. An excess of hydrochloric acid is not necessarily present in ulcer of the stomach, though commonly there is an increase in this secretion. Great variations occur in individual cases, and even from time to time a distinct difference in the amount of acid may be found. The investigation of the stomach contents in functional diseases of the stomach.

Lactic Acid and Organic Acids.—On examination with regard to the presence of lactic acid a test meal free from lactic acid should be given. Dr. Dock has found shredded wheat biscuit excellent for this purpose, and it is withdrawn forty-five minutes after its ingestion. In this, however, as in other features of the chemical investigation of the stomach, too much significance must not be given to either negative or positive results and several trials may be necessary to determine any one point.

Limited Value of Chemical Investigation.—Without other investigations of the stomach contents, the chemical reaction would give very little positive information. If Dr. Dock had to give up the other means of investigation he would consider the chemical as of little service, and would prefer to do away with it. Investigation of the stomach contents, even microscopically, will readily show the presence of excessive mucus, and it should carefully be determined whether this mucus comes from the gastric or the respiratory tract. The presence of pus in the gastric contents can also be readily recognized. But careful investigation must be made to determine that it does not come from the mouth or from the throat. The presence of altered blood in the gastric contents is extremely important. Occult blood can be found better by investigation of the stools.

Microscopical Examinations.—Bits of mucous membrane are frequently contained in the stomach contents, and may give valuable information. It takes some time, however, to harden and examine them properly, but in doubtful cases this should be done. The bacteria present in the gastric contents are of the greatest importance, and must be carefully investigated. Yeasts and sarcinæ are commonly found, and are significant, especially in stagnant conditions. Occasionally protozoa may be found in the stomach contents of sufferers from stagnation of the gastric contents, from whom material is removed before the giving of a test meal. The freezing point of the gastric contents is not of importance though it has been carefully investigated. With regard to other body liquids, the freezing point has not proved of as much importance as was thought.

Conclusion and Demonstration of Mastication.—Dr. Dock said that a single examination of the gastric contents is of little or no importance. Very often no information at all is obtained, yet a negative result enables the examiner to collate this with other information. A very important feature of the investigation of the stomach contents is the demonstration to patients of how insufficiently they masticate their food. If an ordinary meal be removed several hours after it has been eaten, the patient will often be surprised to find what large pieces of meat and potato he has swallowed without realizing that they were going down unchewed. After this it is usually much easier to persuade them that they need to masticate their food more thoroughly, and commonly an immediate improvement in the gastric symptoms occurs as a result. If for no other reason than this it would be advisable to pass the stomach tube in certain cases of bothersome indigestion.

Non-Gastric Diseases; Gastric Symptoms.—Dr. J. H. Musser, of Philadelphia, said that the number of cases that come complaining of gastric symptoms through suffering from affections of other organs is very large. It is extremely important to differentiate these two classes of affections. Practically every organ in the body may reflexly affect the stomach. The eye may cause stomach symptoms, as is well known, and fitting with glasses may relieve dyspeptic symptoms that may have existed obstinately, in spite of all treatment, for a long time. Affections of the

nose and throat may in like manner cause stomach symptoms, and this is illustrated by the frequency among users of tobacco susceptible to its influence. Children suffering from adenoids are especially likely to have gastric symptoms. The ear is a special source of stomach reflexes, and even this short review shows that it may be necessary to call in the aid of many specialists to help in the diagnosis of the cause of supposed dyspepsia.

Nervous Diseases and Gastric Symptoms.—The most fruitful source of gastric symptoms, where the primary affection exists in another organ, are those traceable to the nervous system. Sometimes the first symptom of locomotor ataxia is a gastric crisis which seems to be an acute attack of indigestion. The cause may be readily overlooked, and even surgical operations have been done in these cases without recognizing, until afterward, the real cause at work. Brain tumor may produce nausea and vomiting and other acute symptoms. And epilepsy may be responsible for explosive gastric symptoms of the most elusive character. Rumination is not uncommon in milder cases of epilepsy, and undue chewing is another symptom that has been traced without cause to the stomach. In fact, there are no reflex gastric symptoms that deserve more attention than those which come from epilepsy. Dr. Spiller has shown how frequently and how insidiously these symptoms may develop and the additional fact that up to the present time they have not infrequently been missed.

Gastric Symptoms in the Heart.—Whenever there are obscure gastric symptoms it is especially important to examine the heart. Not a few of the cases of acute indigestion, or so-called acute gastritis with pain, and prostration, especially in the old, are due to cardiac lesions of various kinds. Sometimes these cases end fatally yet unexpectedly, and without a post mortem it is difficult to understand just why the sudden fatal termination has occurred. Careful auscultation of the heart should always be part of an examination of a stomach case presenting obscure symptoms, especially with severe exacerbations.

Gall-Stones; Gastric Symptoms.—Of recent years it has been found that gall-stones are much more frequently the cause of what have been called stomach symptoms than what was formerly thought. Sometimes the symptoms point entirely to the epigastrium, and not to the region of the gall-bladder. Gall-stones may be especially obscure in their symptoms, and this fact must always be borne in mind, especially in cases where, according to the history, there has been the opportunity for the development of gall-stones, as after typhoid fever. Affections of any portion of the intestinal tract may curiously enough give rise to symptoms that may seem to be attributable to the stomach alone, though the stomach itself may be comparatively unaffected. Constipation is especially likely to be reflected in indigestion of one kind or another, and not infrequently directed to this fails until there has been proper regulation of intestinal evacuation. The portions of the intestinal tract farthest away from the stomach seem to be most likely to produce gastric symptoms. This is especially true of cecum and colon, and in recent years attention has frequently been called to the fact that affections of the appendix, when long continued, are especially prone to give obstinate symptoms.

The Genito-Urinary Tract.—Reflexes from this tract are of course the well recognized as producing stomach symptoms. The subject has been exploited in recent years, though, of course, the nervous condition produced by genito-urinary trouble may be the connecting link between the genital tract particularly and the stomach. Wherever anything serious exists in this tract especial attention must be directed to it. In recent years Dr. Musser has found that gonococcus infections of chronic character are especially likely to produce stomach symptoms of various kinds. A secondary toxemia often develops and proves various to treatment. When gastric symptoms, especially in young persons, fail to respond to treatment, careful investigation should be made as to the possibility of the existence of focus of gonococcus infection anywhere in the genito-urinary tract. The prostate should be examined and the urethra carefully investigated by the specialist, otherwise there will be no successful management of the gastric manifestations.

Systemic Conditions and Gastric Symptoms.—It must not be forgotten that anemia always produces gastric symptoms, and that the loss of appetite and perversions of appetite which occur in anemic conditions are directly dependent upon the blood, and cannot be treated by the ordinary remedies for the stomach. It will often be found in anemic conditions that the gastric symptoms will not yield to ordinary tonics, but will be relieved at once by the use of iron and of remedies directed to the correction of the blood condition. In recent years it has been pointed out that many of the cases of chlorosis are really the initial stage of tuberculosis. This calls attention to the fact that the preliminary symptoms of tuberculosis are often gastric. Only too frequently the disease begins insidiously in stomach symptoms, and its true character may be missed entirely unless the physician has his suspicions aroused and looks carefully for the earliest signs of pulmonary involvement. Practically all of the infectious diseases give rise to gastric symptoms. This is true of syphilis as well as of the other infectious diseases, and the stomach symptoms are as manifold as the other manifestations of this protean disease. Even the mild infections may be ushered in by sudden vomiting and by nausea. In children this sudden vomiting may be accompanied by convulsions and some serious stomachic conditions may be feared when it is only the beginning of one of the ordinary infectious diseases.

Intestinal Parasites and Gastric Symptoms.—Practically all of the intestional parasites may cause gastric symptoms with perversions or loss of appetite, or at times greatly increased appetite, yet without gaining weight. All of the various forms of tapeworm produce that symptom, though the clinical picture differs greatly in different individuals, and requires careful analysis. In recent years the frequent occurrence of uncinariasis in this country has come to be recognized, especially at the South, and gastric symptoms are one of the commonest manifestations of an early stage of the disease. Needless to say, in any of these cases the direction of treatment to the stomach entirely is sure to fail, and the patient's improvement depends on the recognition of real pathological condition at work.

Intoxication and Gastric Symptoms.—All of the intoxications produce gastric symptoms. This is especially true of lead, though, of course, mercury and the other metallic poisons produce symptoms. It is not uncommon to find that the serious foundation achylia gastrica is present without any other

cause than the presence of lead in the tissue. In milder cases of lead intoxication, however, the gastric symptoms may be marked, especially with susceptible individuals. Indeed, these may be the first and only symptoms manifest for some time, and require careful investigation in order to discover their cause.

Neuroses.—Practically all of the neuroses produce definite gastric symptoms, though the clinical picture may vary greatly from day to day. Exophthalmic goiter is practically always accompanied by gastric and gastro-intestinal symptoms and, indeed, these are sometimes in severe cases the cause of the later neurotic symptoms. At times the rapidity of heart present together with the gastro-intestinal symptoms are the only ones that herald the beginning of the more serious development of Graves' disease. Gastric neuroses may occur apparently without any cause outside of the stomach itself. Crises of pain and vomiting may occur that seem to indicate some serious involvement of the nervous symptom, and yet prove, after careful study, to be due only to hysteria or the advanced forms of neurasthenia or nervous exhaustion. In the midst of this discussion of neurotic gastric conditions it must be borne in mind, however, that occasionally definite local causes are found for symptoms that seem at first to be due only to the nervous system. There seems to be no doubt, however, that a local focus of suppuration sometimes produces a toxemia the symptoms of which are noticed more in the stomach than in any other organs. Nature seems to attempt to eliminate toxins in the circulation through the stomach wall and the presence of these poisonous materials in the stomach gives rise to symptoms. It must not be forgotten that the local focus of suppuration may be in the mouth due to the presence of carious teeth or some one of the many forms of peridental suppuration that have been investigated in recent years. Oral suppuration may indeed produce serious stomach symptoms, but even severe general conditions and in all cases of stomach disturbance the mouth must be carefully investigated.

Surgical Intervention in Acute Symptoms.—This constitutes one of the most serious problems that the physician has to deal with. The gastric symptoms may be so acute as to lead both surgeon and physician astray. Vomiting with blood in the vomit may occur to such an extent as apparently to make the diagnosis of gastric ulcer sure beyond all doubt, yet on exploratory incision condition present may prove to be nothing more than a severe congestion of the stomach consequent upon cirrhosis of the liver. In the same way uremia may produce gastric symptoms that simulate ulcer of the stomach or severe gastritis. In a recent case the epigastric pain was so typically localized, the vomiting with blood and the presence of collapse seemed surely to indicate the necessity for surgical intervention for perforating ulcer of the stomach, yet fortunately the remission in the symptoms stayed the surgeon's hand, and when death took place four days later from uremia, the autopsy showed that there was no organic disease of the stomach. In the same way cases of locomotor ataxia may produce the impression that surgical intervention is needed. Indeed, there are a good many cases now on record in which operations have been performed during the course of the gastric crisis of tubes, and a careful investigation of the nervous system with reference to this must be made in all cases where there is doubt. As a matter of fact, all the organs of the body may produce symptoms reflexly referred to the stomach. Probably a large proportion of the cases of supposed indigestion are really due to stomach conditions primarily, but to affections of other organs reacting directly or through the nervous system upon the stomach.

Stagnation of Stomach Contents.—Dr. Chas. G. Stockton, of Buffalo, N. Y., discussed the question of food stagnation from all causes. It may be considered to be present whenever the stomach fails to empty itself properly of its contents. The material of an ordinary meal should be disposed of by the stomach in four or five hours. If any of it stays after that time a mild amount of stagnation must be considered to be present. Riegel sets the limit at seven hours for the disposition of an ordinary meal. If patients complain then of eructations of food that has been eaten longer than this, then a certain amount of stagnation is present. Serious stagnation, however, causes retention of food for twelve to twenty-four hours, or even longer. The most important symptoms are a sense of distress, with considerable eructation of gas, and even of vomiting. The general symptoms are those of lassitude and feeling of depression consequent of lack of nutrition and the absorption of unsuitable material. The most important causes are obstruction of the stomach outflow with consequent dilatation. At times, however, there may be marked obstruction at the pyloric orifice, yet very little dilatation. It used to be considered that dilatation always occurred in cases of food stagnation, but this is now known not to be true. As a matter of fact, dilatation occurs only in persons who are predisposed to the development of this condition. The most important cause is a weakness of the muscular layer. The condition is prone to develop in members of the same family, so that there seems to be an hereditary weakness of the muscular wall of the stomach. It occurs particularly in those who overload their stomachs, who take large amount of fluid with their meals, who eat very hurriedly, masticating poorly, and, as a consequence, allowing large portions of food to reach the stomach which cannot be easily disposed of, and block the issue of food from the stomach. The eating of coarse food may produce a similar result.

Gastric Weakness in Convalescence.—During condition of convalescence the stomach seems to be predisposed to dilatation. In a recent case a typhoid fever patient ate heartily of a Christmas dinner, and as a consequence suffered from acute dilatation of the stomach. Persons in weakened conditions, after periods of starvation and after a severe illness, during which time much food has not been taken, must be warned of the possibility of this, or otherwise the foundation of a serious enduring gastric condition may be laid.

Stomach Obstruction.—The most important forms of stomach obstruction are due to tumors of the stomach, especially of the malignant variety, and to cicatricial contraction of the stomach walls usually consequent upon gastric ulcer. At times there is spasmodic contraction of the orifice of the stomach as a result of the presence of an active ulcer. The condition of spasmodic contraction of pylorus is not well understood. The presence of even a small ulcer may give rise to such severe contraction as to prevent the exit of food. On the other hand, the irritation of coarse or badly masticated food may in the course of time give rise to a hypertrophy of

the pylorus, which may make it extremely difficult for the stomach to pass on its contents. As a result, there may be at first some hypertrophy of the muscular wall of the stomach, after which dilatation may develop. More important even than the conditions within the stomach, in many cases, are conditions that cause obstruction from without.

Perigastritis.—Not infrequently inflammatory conditions of one kind or another may occur in the neighborhood of the stomach, producing bands of connected tissue which effectually prevent the evacuation of the stomach contents. Besides, there may be pressure of tumors of various kinds, especially of tumors in the neighborhood of the liver, which may close the pylorus. The obstruction may be in the duodenum, and this will prevent the emptying of the stomach. In a word, careful investigation of all the organs lying near the stomach must he made whenever there is stagnation of food, the cause of which is not easy to find.

Diagnosis of Stagnation.—The presence of stagnation of food may be suspected, as has been suggested before, from the eructation of food taken a considerable interval before it is tasted again. It has been said that if there is anything left in the stomach three hours after an Ewald test breakfast, then stagnation is present. Seven hours should be allowed after a meal for the complete emptying of the stomach. Perhaps the best way of all to decide the question is to examine the patient fasting in the morning, after a full meal has been eaten the night before, when, if the stomach is found empty, no serious stagnation of food exists. A complete examination of the patient should be made in order to determine the presence of affections of any other organs, especially in the neighborhood of the stomach. Systemic conditions, such as blood dyscrasiæ, and various intoxications, sometimes produce functional weakness of the stomach wall and consequent stagnation. This complete clinical investigation is very necessary for a diagnosis.

Treatment.—Mechanical methods of treatment sometimes prove of considerable service in lessening stagnation, and the stomach gradually recovers its tone. Rotation of the trunk in such a way as to assist in the emptying of the stomach is especially important in this matter, and massage is a valuable auxiliary. This must not be massage in general, however, but scientific manipulation of the abdominal wall in such a way as to aid in the passage of the stomach contents. In Dr. Stockton's hands the alternate hot and cold douche produces an active contraction of the stomach wall, and eventually leads to recovery of its tone. Needless to say, the general muscular condition of the patient is important in the matter, and care must be taken that properly directed exercise may help in the general tonicity of the muscular system. Drug treatment is not of so much importance as used to be thought, though there are many helpful remedies. In the milder cases particularly, and in order to prevent the development of more serious conditions, the proper use of carminatives and of bitter tonics will be found of special service. The diffusible stimulants must not be neglected, and will often help in restoring tone until a normal condition is re-developed. For an irritable pylorus it is not so much surgery that is needed, and especially not early in the case, but unstimulating food. In some cases under Dr. Stockton's care a moderate liquid diet, with careful selection of material, has improved patients that seemed to be almost hopelessly ill from irritation of the pylorus, and in whom it appeared to be inevitable that surgery would be needed.

Surgical Intervention.—The surgeon is not needed as often as it is thought in recent times, and it must be remembered that even ulcer of the pylorus, though it produces an ugly condition, may be cured effectually by medical treatment, and is as likely to stay cured as after the use of the knife. After all, it must always be borne in mind that where ulcer of the stomach has occurred once it is likely to recur, and a stomach that has been weakened by surgical intervention is even more likely than the ordinary organ to become the location of a subsequent ulcer. Gastro-enterostomy is often of great service in cases of ulcer of the stomach, but it must never be forgotten that such patients are not in as good condition as they were before, and are likely to suffer from many forms of digestive disturbance. All that the gastro-enterostomy accomplishes is to provide drainage of the stomach, and a natural drainage is always the best.

Surgery of Gastric Cancer.—In cases of stomach cancer, where there is no hope of complete removal of the growth, gastro-enterostomy may yet prove of distinct service. When serious stagnation of food is present nutrition is greatly interfered with, and indeed it is the condition of inanition in gastric cancer that makes the saddest part of these cases. This can be avoided to a great extent by gastro-enterostomy, which will often give those patients a year of comparative comfort and do away with the pains which have been so annoying before. Patients frequently gain in weight, and are able to take up their occupations, becoming quite encouraged. The operation should always be advised, even though a radical good result is not expected.

Lavage.—In certain conditions of dilatation of the stomach, especially with yeast and other fermentations, washing out of the stomach is a very effective means of getting rid of bothersome symptoms. These fermentations may often be lessened by the use of salicylic acid. A combination of lavage and salicylic treatment is especially effectual in many cases. At times the salicylic acid alone will produce results when patients have been suffering very severely.

The Stomach and Other Organs.—Dr. G. W. McCaskey, of Fort Wayne, Ind., in opening the discussion on stomach diseases, said that the stomach produces effects in many other organs, and that the presence of severe indigestion, especially if there is a combination of gastric and intestinal affections, may be reflected in nearly every organ of the body. In most cases the intestines are more directly at fault, but the stomach is not without its share of the blame. Where such disturbances exist the development of renal disease is not uncommon, and the nervous heart symptoms consequent upon stomach disease sometimes weaken that organ and predispose it to more serious affections.

Conservatism in Stomach Treatment.—Dr. McCaskey said that in the treatment of the stomach conservatism is most important, certainly as regards surgery there has been a swing of the pendulum too far toward the extreme of taking cases out of the hands of the physician at a time when they may frequently be benefited by ordinary remedial measures. Unfortunately there is a tendency to think that unless improvement follows treatment very soon there is little hope of eventual benefit. In no department

of theraputics is time a more important element than in the treatment of stomach diseases. Dr. McCaskey has not found cold douches beneficial in cases of stomach trouble, and cannot agree with the experience of others in this respect. In the matter of nutrition carbohydrates and hydrocarhons must be taken to correspond with the amount of exercise, or there will be disturbance of metabolic equilibrium.

Technic of Use of Stomach Tube.—Dr. Morris Manges, of New York, said that one great reason why the stomach tube is not used more frequently is that the technic of its employment is not properly understood. It is no wonder that many people fail to use the stomach tube to advantage, since they never employ the proper sort of a tube. Over and over again Dr. Manges has seen thin, very flexible tubes that of course could not be passed with any ease. Besides, many of the tubes supposed to be for the stomach consist of elaborate apparatus with bulbs and connections, so that considerable practice is needed for their use. All that is necessary is a moderately thick-walled tube, without any bulb, connected to a second piece of tubing by a glass tube of the same caliber, with a funnel at the end. With this the stomach contents can be obtained and examined without any difficulty. Many physicians display an awkwardness in its use that is the result of lack of practice. But after a certain amount of practice the examination of the gastric contents is simpler than the making of an urinary analysis.

Chemical Reaction.—It is more important to find the qualitative condition of the stomach contents than the quantitative chemism. At times only a very small quantity of stomach contents is available, and then test paper is all that is needed. This may be applied at the eye of the tube in the small quantity of material that is to be found there. Of course a single examination is absolutely useless. Several test breakfasts should at least be employed, and one test dinner. The fasting method, with examination in the early morning, is excellent for the determination of dilatation of the stomach or food stagnation. The gross look of a specimen of stomach contents is often helpful, for it shows the presence of mucus or the absence of proper digestion.

Mastication.—Dr. S. P. Black, of Pasadena, Cal., said that probably the most important single element in the treatment of stomach disease is the insistence on mastication. Undoubtedly after a demonstration with the stomach tube, such as Dr. Dock suggests, there will be less bolting of food. People eat too much, and especially too much of meats and the like, and these materials are found galore in the stools. After all, when thus evacuated, they only produce irritation without doing any good at all. When mastication is more complete the appetite is satisfied with less food, and the patient gets the benefit of all the food taken without expensive waste. No one can dictate in the amount of food taken, however, and even for the same individual the amount varies greatly at different times. Old men, evidently, do not need as much proteid material as young, and those living a sedentary life not so much as those exercising a great deal. Since the New Orleans meeting of the Association Dr. Black considers that there has been a very different realization on the part of the members of the Association of the true significance of chronic rheumatism. Undoubtedly many of the vague pains usually called chronic rheumatism are due to the absorption from the digestive tract of irritant materials improperly digested because the stomach has been overloaded as a consequence of insufficient mastication of food.

Blood Tests and Pepsin.—Dr. Miller, of Chicago, stated that blood tests are particularly of service in the examination of stomach contents, since even small amounts of blood point to the presence of beginning ulcers of the stomach, and it is in the initial stage that these can be treated to the best advantage. Even when hydrochloric acid is present it may be well to look for pepsin, and in its absence pepsin will often be found to be present and to be rather active. It is easier to find rennin than pepsin, and its presence shows that the digestive ferments are not absent. At times it is difficult to secure all the stomach contents, and then the Ewald aspirator is of special service. Dr. Miller considers that the presence of carcines or yeasts in abundance in the stomach contents furnish a definite proof that the gastric condition is benignant.

Overfeeding and Mastication.—Dr. J. M. Anders, of Philadelphia, said that there is no doubt that most people eat nearly twice as much as is necessary, and that their appetite would be considerably lessened if they chewed their food more and brought it more in contact with their palate. It is impossible yet to decide with any scientific accuracy what should be the variation of food amount for different ages and occupations. This is coming, however, with more definiteness than before. It is to be hoped that the presence of creatinin nitrogen will prove to be the index of proteid metabolism that has been suggested. It remains, however, for further investigators to confirm this finding. In the meantime, definite information can only be obtained by careful analysis of the food digested and the comparison with the excretion in both urine and feces. The influence of exercise, of baths and of sleep in various persons makes the problem much more complex than is usually thought.

Acute Stomach Rheumatism.—Dr. Anders considers that in certain cases of acute pains in the gastric region the proper diagnosis may be rheumatism or its complications. In a case of acute rheumatism, where the joint symptoms were in abeyance, pains occurred in the epigastrium, and only after careful investigation was it found that a dry pericarditis was found. Not infrequently the only subjective symptom of pericarditis is this form of painful stomach affection.

Fads in Eating.—Dr. F. G. Shattuck, of Boston, said that the history of the present movement as to the question of overeating has been of special interest to him because he has been brought personally in contact with some of those personally responsible for its beginning. Fletcher first took up the idea of mastication, lessening the appetite and consequently decreasing the danger of overeating. Afterward his son-in-law, Van Sommer, too up the idea and made some scientific contributions on the subject. Van Sommer used to be a rather stout and good-natured German until after he became Dr. Fletcher's son-in-law and took the new system. He has now become cadaverous-looking, but is satisfied that the new system is effectual in enabling him to maintain his metabolic equilibrium. Dr. Shattuck has dined with Fletcher and Van Sommer, and is rather interested in seeing them chew every portion taken into the mouth thirty times. Beyond this, however, the interest at table is not so noteworthy. While in Europe Dr. Shattuck had the opportunity to meet Dr. Sandrith, of London and Cairo. Dr. Sandrith is per-

haps the most distinguished physician for English visitors to Egypt. He says that he not infrequently has the opportunity to see patients who have been under Dr. Van Sommer's care at Venice, and that the main thing that he has to do with them is to encourage them to eat more, and so build them up to their normal condition of health. This whole question of the amount of food necessary for a given individual must be approached with the greatest care, and the experience of humanity in general is better than that of a few observers, or even of the most scientific investigation until after confirmation of the results by others and careful elimination of sources of error in the investigation. It is well known that the English soldier had to be fed the best, but was the bravest, and the English sailor needs far more food than any other laborer, but is the cheapest human instrument in the end.

False Gods in Surgery.—Dr. Shattuck considers, after listening to the discussion in the section on surgery, that there is much running after false gods. There are two conditions in which Dr. Shattuck believes surgical intervention may become really necessary. One of these is acute perforation, and the other is obstinate cicatricial contraction. Certainly for ordinary ulcer of the stomach the death-rate from operation is too high, and besides there is a liability to recurrence that makes surgical intervention inadvisable.

California Investigations.—Dr. Pond, of California, said that some work is being accomplished at the University of California that has attracted inconsiderable attention in America, but much attention abroad. A German investigator who recently visited California did not hesitate to say that it is the best work on problems of digestion now being accomplished anywhere. Though the investigations concern mainly human beings, they also touch upon animal digestion, and so have been published in the Bulletins of the Agricultural Department of the State.

Present Position of Stomach Diagnosis.—Dr. James J. Walsh, of New York, said that the present discussion on gastric disease is likely to be of as much value in clearing the decks for future advances in gastrology as the discussion on kidney diseases was in that department. If there is one department of medicine in which the old saying of Josh Billings has been especially exemplified, it is in the treatment of gastric disease.

Billings said: "It is not so much the ignorance of mankind that makes men ridiculous as the knowing so many things that ain't so." Certainly the number of things that has been known about digestion and indigestion that are not so are legion. More remedies come to the doctor's table and more literature is issued by manufacturing chemists of varied authenticity than with regard to any other class of diseases. Ferments of all kinds, gathered from all fruits and plants and vegetables of all the world, and vaunted as more specific the more distant their origin, have been manufactured and tried, and announced as cure-alls. As a matter of fact it is the chemistry of the stomach of which least is known and little can be done to supply digestive juices. Each individual is a law unto himself, and no one can dictate to anyone else what he or she shall or shall not eat. Pavlow's researches show that the stomach provides a special kind of gastric juice for each different kind of food. The psychic element is more important in the preparation of digestive juices than almost any other link of the chain of nervous, mental and mucous factors that enter into digestion.

Motility Versus Secretion.—The experience of recent years shows that the motility of the stomach is much more important than its secretion. There are any number of cases on record now in which the motility of the stomach remaining unimpaired, though there was serious secretory disturbance, health was very little interfered with. Many patients suffer from achylia gastrica, a condition in which there is no stomach digestion, yet have no digestive symptoms so long as the stomach remains capable of passing on the material to the intestines. In the cases of stomach cancer, in which large portions of the stomach or even the whole of that organ have been removed, digestion has improved immediately after the operation, and the patients have gained in weight, though living without a stomach. In cases in which serious interference with nutrition as a consequence of failure of stomach motility the surgeons do gastro-enterostomy, and the patient immediately improves in health. It is not good to be without a stomach, nor is the gastro-enterostomized patient equal to the normal individual, but the lessening of the importance of stomach motility is emphasized.

Gastric Symptoms.—In the treatment of gastric symptoms, then, it is important to remember, as a rule, that what is to be modified is not stomach secretion, but stomach motility. If the food will only be passed on properly the intestines will compensate for the stomach, and as nutrition improves the gastric disturbances will disappear as a rule. Many symptoms of gastric disease are really the result of non-gastric affections, the motility of the stomach being disturbed reflexly, and improvement will only occur after the removal of this cause. Many of the tonic bitters, and especially strychnine and related substances, do good much more by acting on the gastric muscle than on the gastric mucous membrane. The stomach cannot pass on food if it is not properly masticated, or if it is too large in quantity. The advice to patients must be, then, mastication and mastication, and again, mastication. The lessening of the amount, especially of the proteid material, is evidently needed in many cases, though it seems not unlikely that the pendulum will swing too far in this matter, and the patients take too little rather than too much food. Above all others stomach patients must be considered as individuals.

Lessening of Fluid.—Dr. Lichty, of Pittsburg, said that by advising patients to masticate more, and to take less fluid during meals and for an hour afterward, many gastric symptoms disappear. Formerly he used lavage, massage and electricity, and found that the improvement that came in this way could be secured by advice with regard to mastication and lessening of the amount of food taken. Coarse food may by its continuous irritation produce hypertrophy of the pylorus. On the other hand, the tonicity of the stomach is increased by proper mastication. The surgeon has a very definite place in the treatment of stomach disease, and while at the present moment there is as much objection to his interference with what used to be considered medical cases, the physician will come to accord him a definite place here. Not infrequently stagnation of food is due to the presence of bands of adhesion. This can only be definitely diagnosed by means of exploratory operation, and no amount of treatment of any kind will give relief without surgical intervention. Dr. Lichty

considers that the examination of the vomit of pregnant women and children by means of test papers, especially litmus and congo, may give valuable information without the necessity for the use of the stomach tube.

Mastication and Limitation of Diet.—Dr. Cooper, of San Francisco, said that if patients only chew their food enough there is no need to dictate a limitation of diet. There will come naturally a limitation satisfactory alike to patient and physician. On the Pacific Coast particularly it is important to remember that in cases of aneurism the introduction of the stomach tube is contraindicated. Dr. Cooper has recently seen five cases of abdominal aneurism, in all of which there were marked stomach symptoms. There should always be a full clinical examination of the patient before the chemical examination of the stomach contents. Dr. Cooper has found that in cases where the introduction of the stomach tube causes great discomfort the use of a strong peppermint tablet five minutes before the introduction has an anesthetic effect that makes it more comfortable for the patient.

Absorption Not from Stomach.—Dr. Bridges, of Los Angeles, said that there was one physiological fact with regard to the stomach omitted from the discussion. This is that the stomach is not useful for absorption, hence the significance of its motor power. The stomach is meant mainly as a reservoir, so that food may be taken at reasonably long intervals and properly mixed here. Even water is not absorbed from the stomach, and the organ is a convenience, but not a necessity. It is important, however, to decrease the useless labor put upon the stomach, especially in crushing the food not masticated. It is not true that the stomach produced directly other diseases, but is itself much influenced by all other organic affections.

Proteids After Adult Life.—Dr. Frank Billings, of Chicago, in closing the discussion, said that it is hard to decide just how much proteid must be taken, but only enough is needed to make up for body waste. Carbohydrates and fats supply the fuel for its energy. It is interesting to know that Fletcher and Van Sommer are relatives in law, and it is possible that their sacrifices in so good a cause may prove for the benefit of humanity. Undoubtedly too much proteids are consumed under the present dietaries, and a reaction in the opposite direction will do good. Dr. Billings wished to remind investigators of gastric contents that whenever bread is employed in the test meal, even though it be two days, yeast cells are sure to be found in the stomach contents when removed. They may be thought to be abnormal or to have some significance, but they have not.

Gastric Mucus.—Dr. Dock, in closing the discussion, said that practically any mucus visible in the stomach contents is abnormal. The examiner must, however, be sure that the mucus does not come from the mouth or the respiratory passages, or from mechanical irritation of the mucous membrane of the stomach, owing to awkwardness in the manipulation of the stomach tube. Dr. Dock considers that test papers are good in the analysis of stomach contents, but should be controlled by the burette, and the original practice in chemical investigation of the stomach should be made with the burette for proper discipline. The vomit of patients will not replace the stomach tube, and even when material is vomited there may still remain a considerable amount in the stomach of quite different material. When sarcines are present in large quantities, then the condition is not malignant. Yeasts do occasionally occur in cancer. Dr. Dock is sorry that he cannot agree with Dr. Walsh in considering that the shutting off of the stomach so as to allow the passage of contents is at all an answer to gastric difficulties. After gastro-enterostomy occasionally peptic ulcers occur, and the last condition is worse than the former. There is a middle ground of surgery and nihilism in gastric therapeutics in which very encouraging results may be obtained.

Non-Gastric Disease Percentage.—Dr. Musser, of Philadelphia, said that 65 per cent. of stomach disease is secondary to affections in some other parts of the body. More than 10 per cent. of these cases at least present none but stomach symptoms, and at the beginning of obscure affections of other organs there is still a larger proportion of obscure gastric symptoms. Practically any organic disease in the body may produce secondary gastric conditions, and nearly all of them do eventually.

Mastication Most Important.—Dr. Stockton, of Buffalo, in closing the discussion, said that there is a proneness in the present day to say that organs are not necessary. To some extent it is true the stomach function may be eliminated without very serious results. Nature sometimes produces a condition of achylia gastrica in which there is no stomach digestion, and an increase of motility hurries the food on into the intestines, to be digested there. Dr. Stockton has not, however, ever seen a case of achylia gastrica in which the patient was well. They come to the physician not complaining so much of stomach symptoms as of nervous conditions of various kinds, lassitude, lack of energy, and nervous depression. Anemia is a common result of this lack of stomach digestion. The physician must then, by his advice with regard to mastication and a lessening of the amount of food taken, secure stomach motility and the prevention of interference with it as far as possible as well as taking care of stomach secretions.

Dr. Billings, in closing the discussion, said that there were three books that he should like to recommend all the members of the American Medical Association to read, the reading of which he was sure would give them more practical information than any other he could name. They are: "The Physiological Economy of Nutrition," by Prof. Chittenden, of Yale University; Dr. Follin's articles on "The Physiology of Digestion," which appeared in the *Journal of Physiology* for the first three months of the present year, and Prof. Pavlow's book on the "Physiology of the Digestive Glands," which, written originally in Russian, has been translated, and is the most valuable contribution to gastric physiology made in recent times.

Dr. W. D. Brydone-Jack, of Vancouver, the President of the British Columbia Medical Association, asked to be allowed to invite the members of the American Medical Association to stop off on their way home, and attend the sessions of this Canadian Medical Society, which will be held on Tuesday and Wednesday, July 18 and 19, that is, in the week following the meeting of the American Medical Association.

Coccidioidal Granuloma.—Dr. W. Ophüls, of San Francisco, discussed the gross morbid appearances of this disease, of which only a few cases were known a few years ago, but which is now recognized as occurring not uncommonly. At first it was thought

to be due to a protozoon; then its etiology was attributed to a coccidium. After a time, however, it was found that cultures of the micro-organism could be made, and that it grew not unlike a mould. As this is called oidium, Dr. Ophüls has considered that the name coccidioidal would be especially suitable. The symptoms produced and the pathological lesions are not unlike those produced by blastomycetes. The disease is, however, quite distinct from blastomycosis.

Discussion of New Cases.—So far some ten cases of the disease have been reported, and to these Dr. Ophüls adds three new ones. One of these was suspected to be malaria, a second was for years thought to be chronic meningitis of tuberculous origin, and the specimens were exhibited as characteristic of tuberculous inflammation of the meninges. Years after the death of the patient the parasites were discovered in the tissues. Another case was caseous, osteomyelitis, a fourth case was caries of the elbow in a Chinaman diagnosed as tuberculosis. It is evident that the affection can only be recognized by means of a microscope. It presents a great variety of lesions usually bearing a striking similarity to those of tuberculosis in its manifold manifestations.

Pathological Conditions.—It is an infectious granuloma, and its lesions bear a striking resemblance to most of the other infectious granulomata that makes its diagnosis extremely difficult. It produces small and large chronic abscesses, and its cutaneous lesions resemble those of glanders. It is probable that the skin manifestations are primary, and that from this as a focus of infection the disease becomes generalized at the end. A characteristic of the disease in the lungs is that it is not limited to these structures, but extends by continuity into the mediastinum or into the soft tissues of the neck. Whenever it finds its way into the blood current miliary coccidiosis occurs. The generalization resembles that of tuberculosis very much. The bones are very often infected and caseation of the adrenals is not uncommon. In animals experimented upon, especially guinea-pigs, the envolvement of the genitalia is frequently seen. This resembles the corresponding lesions in glanders more than anything else.

Frequency of Disease.—Dr. Ryfkögel, of San Francisco, said that this affection is evidently more common than has been thought. Its skin lesions especially have been mistaken for other and supposedly more benign affections. This is especially true in regard to eczema and various forms of tuberculosis of the skin. Various attempts were made to inoculate the disease into animals without success, as a diagnostic measure and for purposes of investigation, until it was found that not infrequently the micro-organisms were enclosed in tough fibrous tissue from which they could not readily escape. Even when intravenously injected the injection was unsucessful. The intraperitoneal injection succeeded, however. After the tissues were ground up in a mortar, so as to free the micro-organisms, then infection took place more regularly.

Thyroid Disease in California.—Dr. Herbert C. Moffitt, of San Francisco, said that thyroid affections were more frequent in California than had been thought. The presence of aneurisms and of arteriosclerosis are certainly more common in California than in other parts of the country, and something of the same thing seems to be true with regard to thyroid. Endemic goiter is perhaps not as common as in Washington and the northern part of the Pacific Coast, where in certain of the valleys even animals are reported as suffering from enlarged thyroids. The tradition as to the occurrence of cretinism in California has been denied. Moderate enlargements of the thyroid are quite common, however. Five per cent. of young women entering the University of California suffer from some enlargement of the thyroid. Goiter is said to be less common in Southern California, and yet the statistics of the High School show 8 per cent. of the affection. In the interior the population is less affected.

Exophthalmic Goiter.—This disease occurs quite commonly and in two forms, in one of which the sexual and mental symptoms are more predominant than the nervous symptoms. It has been recently claimed that when the parathyroids are affected the sexual and mental systems are apt to suffer more. Not infrequently exophthalmic goiter eventually develops into a form of disease in which there is a lack of secretion of the thyroid, and in which fat pads may be noted above the clavicles and in the back of the cervical regions. In advanced cases there is a bib-like pad over the sternum and an apron over the abdomen. Many of these patients suffer from the dry skin, the pains in the joints, thinness of hair and lack of strength, which characterizes myxedema.

Iodine and Its Compounds.—Iodine certainly has an important relationship to the thyroid secretion. The abuse of potassium iodide in cases where there is already excess of thyroid secretion is sure to do harm. Kocher, of Berne, who has studied this class of cases very fully, considers that many of the thin, nervous people who jump at every sound have an excess of thyroid secretion, while phlegmatic people have a deficiency. In these cases it is necessary to to be particularly careful in the use of potassium iodine. Kocher has found over and over again that the use of this drug emphasizes symptoms already present, or brings them to notice when they have scarcely at all existed before. The most important early symptom is the fixed stare or glare so characteristic of exophthalmos. Care must be exercised, however, in studying this. Among the Southern nations who are accustomed to use their eyes much in talking, who, as it were, gesticulate with their eye muscles, a much better command of the eye is the rule than in other persons. They can look unwinkingly for long periods, and give one the idea that the Stellwag symptom is present. With regard to their rapid heart, it must always be remembered that certain nervous affections may produce it. Dr. Moffitt has seen it, for instance, in growing boys who indulged to considerable extent in masturbation. An excessive use of tobacco in boys will also produce the same sort of nervous cast heart.

Potassium Iodide in Diagnosis.—It should be remembered that potassium iodide will aggravate the symptoms of Graves' disease, and this may in doubtful cases be used for diagnostic purposes. It emphasizes the necessity, however, for great care in the use of iodine preparations and of thyroid extract in these cases. It very seldom happens, however, that a patient suffering from Graves' disease comes without giving the history that at some time they have been treated by thyroid extract. The unpleasant symptoms pronounced by the iodine preparations, and especially by potassium iodide, may be relieved by Fowler's solution, which acts not alone upon the cutaneous lesions, but also upon other manifestations.

Treatment.—For the nervous symptoms the bromides are the best. Phosphate of soda will be found of use, because it helps to alleviate the intestinal symptoms, while the bromides control the heart and restlessness. Parathyroid extract has been recently recommended, but does not seem to be of much service. Horsley suggested division of the isthmus of the thyroid as a surgical procedure, and obtained good results from it. Other surgical measures, such as removal of portions of the thyroid, have produced good effects in severe cases where complications were to be feared. Dr. Moffitt has employed rodagen during the last few months, and has obtained some good results. One patient has taken the remedy for eighteen months, six grains daily, and it has apparently controlled the pulse and other symptoms. One patient has taken the remedy for five months in similar dose, and is much better. A more pronounced case has taken it for four months, but without effect. Its employment in many further cases is needed in order to determine its absolute value.

Parathyroid in Graves' Disease.—Dr. James J. Walsh, of New York, said that as the result of Dr. McCallum's studies in Baltimore, and Prof. Gleys' investigations, witnessed in Paris years ago, he had been tempted to use parathyroid extract in some cases. Altogether four cases have been treated in this way, two of them apparently with good results, and two with a deterioration of their symptoms, possibly due to the parathyroid material they were taking. The two first cases were mild and of the kind in which suggestion plays a large rôle in the treatment, and in which intermission of symptoms are not unusual. The cases unimproved were of the severer type in older persons not much influenced by suggestion and usually without intermissions.

Graves' Disease in Old and Young.—As a matter of fact, under twenty-five years of age the symptoms of Graves' disease not infrequently disappear, sometimes to be absent for a long period, after very little treatment. In older cases of Graves' disease, however, intermissions are much rarer, and it is on these cases particularly that new remedies must be tried. In young persons the prognosis is not unfavorable unless acute complications threaten, such as interference with breathing or conjunctivitis as the result of exposure of the eye. In one case a very severe type seen when the patient was sixteen to eighteen years of age, complete remission of symptoms took place after treatment of the intestinal tract, and ten years afterward, though the patient had had in the meantime two children, there has been no return of symptoms.

Avoidance of Thyroid Extract.—Dr. Wells, of Chicago, said that he has, during the last twenty years, seen many cases of Graves' disease, and in very few of them has he not found on careful inquiry a history of thyroid extract being given as a remedy for the disease. Without exception, all of these patients have been made worse during the time they took the thyroid extract, and it is evident that a warning is needed in order to keep practitioners of medicine from experimenting with this harmful substance. In Dr. Wells' own experience codeine has been the most useful drug for the control of the nervous symptoms, and its use may be prolonged almost indefinitely. During the experience of the last few years particularly this has proved an excellent remedy.

X-Rays for Graves' Disease.—Dr. Firmly, of Tacoma, Wash., said that in a certain number of cases of Graves' disease treated by X-rays he has obtained improvement by exposures to the X-rays. Cases that do not yield to other remedies seem to do very well under this. Out of six cases only one failed to be benefited.

Spontaneous Fluctuation.—Dr. McCaskey, of Indiana, said that spontaneous fluctuations of the symptoms of Graves' disease are so common that it is difficult to decide whether a remedy is helpful or not. Intermissions occur, but after a time the symptoms recur. His experience with operative treatment has not been very favorable, though in some cases improvement has occurred a considerable time after the operation.

Dr. Whiteside, of Portland, said that quite a few dogs in the neighborhood of Portland suffer from enlarged thyroids. These have a more rapid pulse than other animals of the same species, but do not suffer from prominence of the eyes.

Frequency of Enlarged Thyroid.—Dr. Grandee, of Norfolk, Va., said that there are more enlarged thyroids in nature than has been thought. In his own small practice he has seen many of them. Whenever the thyroid is increased in size patients are nervous and have a tendency to rapid pulse even though there may be no definite symptoms of Graves' disease. When the thyroid secretion is decreased patients are inclined to be fat and have a slow pulse. These need thyroid extract, while the thin, nervous person is always harmed by it.

Incomplete Graves' Disease.—Dr. Lichty, of Pittsburg, agreed with Dr. Grandee as to the frequency of Graves' disease, and added that in no disease is early diagnosis so important as in this affection. If any two of the cardinal symptoms are present, then the diagnosis of Graves' disease should be considered justified. Besides the rapid heart, the enlarged thyroid, and the prominent eyes, Dr. Lichty considers that tremor and increased perspiration should be considered as cardinal symptoms. Young women should be warned when such symptoms are present of the danger of skating, bicycling, gymnastic exercises, and other overexertion. Cures are obtained by means of the rest treatment, and where these fail the removal of a portion of thyroid is the best method.

Exophthalmic Goiter and Myxedema.—Dr. Moffitt said, in closing the discussion, that patients suffering from Graves' disease for many years slowly slip into myxedema. Treatment is not so hopeless in the old, in his experience, as has been said. When gastric symptoms are present these must be treated, and for the nervous symptoms the bromides and belladona are especially effective. Dr. Moffitt has found that in young women particularly operation gives excellent results very frequently, to his knowledge four out of five cases having distinctly improved, though the symptoms had been very severe.

Type of Tuberculosis on the North Pacific Coast.—Dr. Woods Hutchinson, of Portland, Ore., described a special type of pulmonary tuberculosis which seems to exist on the North Pacific Coast, especially in Oregon, Idaho, Washington and Montana. It has the following characteristics, which have been noted at the Washington State Sanitorium for Consumptives, not far from Portland. The sanitorium is not long open, and only 81 cases of tuberculosis have been under treatment; 36 of these have proved to be of this specially virulent type, and some 25 other cases, in private practice, of the same type, have been carefully studied. The most striking fea-

ture of the cases is the rapidity of their course. The most careful examination of the history fails to show any affection existing more than three to four months before they come under observation, and yet the patients are in the third stage of pulmonary tuberculosis. Besides this rapid course there is a very weak and rapid pulse, which sometimes cannot be detected at the wrists, and often cannot be counted there, but must be examined with the stethoscope over the heart itself.

Temperature.—Besides the high pulse the most characteristic feature is the temperature, which is not high, but is often markedly subnormal. Not infrequently a temperature of 94° or 95° F. in the morning will be found to occur, though the afternoon temperature is not much above 99°. In one case the early morning temperature was only 93° F., and the afternoon just normal. It seems not unlikely that some of these cases run their course with a permanently subnormal temperature.

Pulmonary Physical Signs.—The absence of physical signs is a noteworthy feature of the cases. There are very few râles, and no bronchial breathing at the beginning. There seems to be no disturbance of the percussion of note. After a time, however, familiarity with the cases shows the presence of a boardlike tympany that simulates the normal percussion sound. At the autopsy the lungs are found to be infiltrated on the surface without any special affection of the apices of the lungs. The anterior surface of the lungs is more affected than other portions. This thickening of the anterior surface sometimes gives rise to an apparent absence of air sounds, and makes the breathing distant. At the autopsy the lungs are hard to get out of the thorax, because, instead of being shrunken, they are enlarged and are found indented by the ribs. There is a marked absence of cavities.

General Symptoms.—Another feature is the absence of hemorrhage. Early in the case there is very little cough. For the first three months there is a little hacking in the morning that seems to be scarcely more than a catarrhal raising of superabundant mucus. The expectoration is slight, of glairy consistency and seldom contains tubercle bacilli. When the bacilli are found they have certain special characters of their own. They are short and thick, and resemble those seen in bovine infections. Dr. Ravenal, when consulted on the subject, ventured to suggest that the description of the bacilli associate them with this form of infection from animals, and as Washington and the other States are cattle-raising countries, the reason can readily be understood.

Etiology of This Type.—Dr. Hutchinson does not find that this special type is due either to the altitude or to the moisture of the places in which patients live. Some of them have come from along the Sound, where they have been living practically at the level of the sea, while others come from back in the Cascade range of mountains at rather high altitudes. Needless to say, these various altitudes present very different conditions of moisture. Race seems to have nothing to do with the development of the disease, though most of those affected are Americans of the second or third generations, who have been living in the Northwest for some time. It will be recalled that the Indians suffer very severely with tuberculosis—presenting a death rate of over 50 per cent., though they live in tents and have all the advantages apparently of the outdoor treatment by their natural habits of life. The Indians present no racial immunity to the disease, and it would seem as though the Northwesterners have lost their racial immunity, as the result of long living in the outdoor air.

Heart Weakness.—The subnormal temperature, the marked feature of the cases, seems to be due to the fact that the systems of these patients do not react sufficiently to produce a rise in temperature. The difficulty is the weakness of the circulation, consequent upon more or less heart failure. The heart is weak out of all proportion to the other organs. In all cases of pulmonary disease the prognosis depends more on the heart than it does on the lungs. This is especially noteworthy in pulmonary disease, but occurs also in tuberculosis, though it has not been taken sufficient account of. It is well known that a rapid pulse at the beginning of tuberculosis usually makes an unfavorable prognosis. In these cases the galloping heart which, as the disease advanced, became even embryonic in its sounds, giving the tic-tac or equality of sounds. The sound being nearly equal in length to the first, that in all affections makes an unfavorable prognosis.

Temperature Range.—Dr. Woods Hutchinson says that the important diagnostic lessons in these cases is the necessity for studying not alone the febrile temperature of the patient, but the whole daily temperature range. Sometimes it is said that unless a patient has a temperature of 99.5° F. that there is no fever. If, however, it will be found, as is not infrequently the case, that the morning temperature is below 97° F., or even lower, then anything above 99° F. in the afternoon indicates a serious interference with the average normal temperature. In fact, whenever the temperature range has a variation of more than one degree and a half in the twenty-four hours, there is some toxin being absorbed into the circulation which causes a disturbance of the daily normal temperature rhythm. In all cases of tuberculosis, then, careful observation should be made to determine the temperature range.

Acute Miliary Tuberculosis.—Dr. Cheney, of San Francisco, said that for ten years he has been carefully studying cases of tuberculosis as they occur in San Francisco, and he has not seen the type of tuberculosis suggested by Dr. Woods Hutchinson, so that it is not common at least along the Southern Pacific Coast. Acute miliary tuberculosis, as it occurs in San Francisco, resembles these cases described by Dr. Hutchinson not a little, but it does not occur near so frequently as described by Dr. Hutchinson. After all, it must not be forgotten that considerably more than one-third of his cases are of this rapidly progressive type.

Dr. Miller, of Chicago, suggested the possibility of secondary infection in the specimen presented by Dr. Hutchinson.

Hasty Consumption.—Dr. Norman Bridges, of Los Angeles, said that the cases described by Dr. Woods Hutchinson in their rapid development resembled very closely the cases of miliary tuberculosis that used to be called hasty consumption, Phthisis Florida of the old text-books. In these cases the temperature is frequently not high at any time. There is not very much expectoration, and the breaking down in the lungs is not nearly so prominent as in other forms of consumption. What needs explanation, however, is the frequency with which these cases occur in the Pacific Northwest. The physical signs, too, are usually more prominent than suggested by Dr. Hutchinson. There are always minute crepitant

râles resembling the crepitant râles of pneumonia. Their presence is due to the rapid infection of the surface of the lungs which causes a correspondingly rapid consolidation. Death takes place in from a few weeks to a few months.

Race Susceptibility.—Dr. Brown, of San Francisco, said that the description of Dr. Hutchinson's cases vividly recalled the progress of tuberculosis as it is seen in especially susceptible races. The case of the Indians has already been suggested. The Chinese are another race that prove very susceptible to this disease, and in whom it runs a very rapid course. This would seem to be due partly to the absence of proper habits of life among the Chinese, and a lack of the nutrition suitable for our climate. The pathological specimen presented by Dr. Hutchinson resembles not a little the conditions seen in monkeys that have developed tuberculosis. Not a few of the soldiers returning from the East brought monkeys with them, and many of these succumbed eventually to tuberculosis. At autopsy they presented lesions not unlike those of acute miliary tuberculosis of human beings, and like those described by Dr. Hutchinson and seen in the specimens.

Secondary Tuberculosis.—Dr. Ophüls, of San Francisco, said that the lungs presented by Dr. Woods Hutchinson constituted a very rare specimen. They resembled more the lungs of pearly disease of cattle than tuberculosis in human beings. The most notable characteristic is the almost complete absence of cavities, notwithstanding the advanced tuberculosis process. In cattle, too, there is always considerable calcification of the nodules of tuberculosis, absent here. Dr. Ophüls has never seen a tuberculosis lung like this either in Europe or in America. Certainly they do not occur in California. It seems likely that this case is an example not of primary tuberculosis, but of a secondary process consequent upon a primary focus somewhere else in the body.

Dr. Mackay, of Oregon, said that the disease described by Dr. Hutchinson resembles miliary tuberculosis, though of course it may be an unusual type, possibly of bovine origin.

Dr. Moffitt said that this type of tuberculosis resembled somewhat the pneumonic phthisis seen in the susceptible, and occurring among the Chinese. Even this, however, is much rarer than the affection described by Dr. Hutchinson, and has certain distinct differences.

Primary Kidney Tuberculosis.—Dr. Woods Hutchinson, in closing the discussion, said that in the case from which the specimen was presented the primary lesion had been in the kidney. The symptoms presented by the kidney tuberculosis were so acute that an operation was performed for stone in the kidneys. At the operation the true condition was discovered, but after three months the patient died with the lesions shown at autopsy. Undoubtedly the case resembles cases of tuberculosis in animals more than in human beings. In some experience at making autopsies at the London Zoo corresponding lesions were seen. In the Indian reservations this same type occurs very frequently. It would seem then that susceptibility had nothing to do with the virulence of the infective process.

Value of Various Hemoglobin Instruments.—Dr. M. Howard Fussell, of Philadelphia, discussed the value of various hemoglobin instruments to the general practitioner of medicine. Fifty patients were taken unselected and studied by means of the Dare, the Fleischl and the Tallqvist scales. At least two observers used the same method of estimating the hemoglobin on each patient. As a result of this study it was found that the variation of the amount of hemoglobin present was very slight. The personal error amounts to at least as much as the instrumental error, but neither of them are sufficient to vitiate the conclusions that may be drawn from them. It is a comparatively easy matter to learn to use any of these instruments, and Dr. Fussell pointed out how significant is the knowledge that may be obtained from them. In all cases of anemia the recognition of the amount of hemoglobin present gives very definite information and indications for the employment or non-employment of iron therapy. This of itself would be sufficient to bring the instruments into much more general use than at present.

Officers.—The following officers for the medical section were elected for the ensuing year: President, Dr. Herbert C. Moffitt, of San Francisco; secretary, Dr. Miller, of Chicago. Dr. Dock, of Ann Arbor, was elected the representative of the section in the House of Delegates.

BOOK REVIEWS.

Diseases of the Heart and Aorta. By Thomas A. Satterthwaite, M.D., Professor of Medicine in the New York Post-Graduate Medical School; Consulting Physician to the Post-Graduate, Orthopedic and Babies' Hospitals; President of the Medical Association of the Greater City of New York. E. R. Pelton, New York.

From his full grade as a teacher and clinician Dr. Satterthwaite has realized the genuine need of a work upon this intricate and interesting subject which combines brevity, clearness and rationality with practical and modernness of thought.

Purposely he has restricted, so far as possible, the anatomy and surgery of the parts, dwelling chiefly upon physical diagnosis, symptomatology and treatment, to the latter of which he devotes particular attention, giving at some length the Manheim method, with American adaptations, fully illustrated.

Throughout the text he has inserted more than one hundred illustrative cases which are both useful and instructive.

The author faithfully maintains the scope to which he has restricted his efforts, and as a handy book it deserves to become popular.

The Medical Annual; a Year-book of Treatment and Practitioner's Index. Twenty-third Year. John Wright & Co., Bristol, England.

The contributors to the Medical Annual number some of the distinguished English medical men, besides some well-known Americans. There is no doubt that this work represents each year one of the best compilations of the progress of medicine that is on the market. It is especially rich in illustrations that illustrate, and in practical hints for therapeutics. It is rather curiously interesting to find under the head of the treatment of smallpox by red light, the fact that the Chinese have for many centuries treated smallpox patients in this way, but after all, many of our most satisfactory empiric remedies date back to the time when their origin was lost in the mists of tradition, and it is hard to understand just how they came into use. For a single volume annual we know of none better than this.

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ORIGINAL ARTICLES.

AN ANALYTICAL AND CLINICAL STUDY OF THIRTY CASES OF ECTOPIC PREGNANCY.

BY SAMUEL M. BRICKNER, A.M., M.D.,
OF NEW YORK;
ADJUNCT ATTENDING GYNECOLOGIST, MT. SINAI HOSPITAL.

IN the two years ending December 1, 1904, thirty cases of ectopic gestation were admitted to the first gynecological service of the Mt. Sinai Hospital. It has seemed worth while to review these cases critically in their clinical and diagnostic lights for the purpose of determining the relative value of the varying symptoms presented in this interesting condition.

Sterility.—All authors, except the most recent, agree that a certain period of sterility is coincident with, or favorable to, the development of an ectopic pregnancy. In more recent light, however, it seems more correct to ascribe the sterility often preceding an extra-uterine pregnancy to some uterine or tubal lesion which is itself, possibly, responsible for the abnormal pregnancy, *i.e.*, a severe endometritis, a retroversion, inflammatory disease of the appendages, etc. Another reason for the alleged sterility lies unquestionably in the methods used to prevent conception, which some patients have frankly avowed, failed in the present instance. It is impossible in the present paper to go into the question of the etiology of ectopic pregnancy. Miholitch[1] has made out a good case for an accessory lumen or lumina in the tube. Ballantyne[2] suggests that if the ovum be detained in the tube till the trophoblast, by which the ovum attaches itself to the uterine wall, be fully formed, or if this be formed prematurely, the ovum may effect a lodgment upon the tubal mucosa. It may be that we shall never know positively the source or sources of tubal pregnancy; but whether Webster[3] is right in his atavistic theory, or whether congenital or inflammatory conditions are at fault, the fact remains that in some cases we find absolutely no deviation from the normal, while in others we see, accompanying the abnormal pregnancy, the grossest pathological conditions which should, in themselves, make for sterility.

In the present series of cases, the longest period of sterility was eleven years, the shortest period since the preceding pregnancy, eight months. The average sterile period for the thirty cases was 3.40 years. Seven of the patients, or 23 per cent., had never before been pregnant, so that it is impossible, in their cases, to speak of any period of sterility. Four others had had spontaneous abortions only, the periods of sterility being respectively eight months, three and a half years, two years and six years. One of these had had two attacks of gonorrhea, and another had fever in the recovery from her first abortion, presumably from some inflammatory process.

From these figures, it is evident that previous sterility in cases of tubal pregnancy is certainly not dependent upon any one factor and that it is not necessarily a premise to extra-uterine gestation. But I would like to emphasize this point in this class of cases: That the *inaptitude to conception* when it does occur, *is probably the underlying cause of the ectopic pregnancy*, and that the tubal pregnancy, on the other hand, does not depend upon the sterility. In other words, the anamnesis of the patient should not mislead the physician because a period of relative sterility has been noted.

Para.—Of the thirty patients, seven had never been previously pregnant, and four others had aborted but had never gone to term. Twelve had had one child, six had given birth to two children, and one had had four, one five, and one eleven full-term births. One of the patients had been previously operated for tubal pregnancy on the other side and had never otherwise been pregnant. Two patients had had abortions before a final gravidity which went to term.

Age.—The oldest patient of the series was forty-one, the youngest twenty-one years of age, the average age of thirty being twenty-seven and nine-tenths years. I have appended as the briefest form of expression, the following table:

Age....	21	22	23	24	25	27	28	30	31	32	33	34	35	37	41
Cases..	1	2	5	2	1	4	1	4	1	1	1	4	1	1	1

Tube Involved.—Among the thirty cases there was one hematocele. The character of the operation for which (posterior vaginal section), did not permit a determination of which tube had been involved. Another case was an intramural pregnancy with the typical history of an ectopic pregnancy. Of the remaining twenty-eight, fourteen pregnancies were found on the right side and the same number on the left, a distribution so even that it is impossible to speak of a predilection for the condition to attack either side.

Dysmenorrhea.—In but twenty-three of the cases is any note made of the character of the usual menstruation. Of these, fourteen are said to have no pain with the menstrual flow and nine are given as having had painful menses. These figures have no especial significance except, possibly, to indicate that the fourteen patients, at least, were not suffering from any gross pathological changes in the pelvic organs.

1 Zeitsch. fur Geb. und Gynäkol., Vol. 49, p. 42.
2 Antenatal Pathology and Hygiene, "The Embryo," p. 618.
3 "Ectopic Pregnancy," 1895.

The Bleeding.—The subject of metrorrhagia has been carefully studied. In three of the cases the data are missing. In twenty-seven cases, the average length of time preceding admission at which the patient last menstruated was 7.24 weeks. The shortest time at which the regular period had taken place was two weeks prior to admission. This was a case of tubal abortion in which there had been no external bleeding whatever. Two patients had menstruated last as long as three months before applying for admission; in one of them a hematocele was found, in the other a hematosalpinx of the left side. Between these extremes, every variety of irregularity in menstruation is noted.

In every case but one there is a history of irregularity in the menstrual flow, and this point is of great importance in considering the history of patients suspected of being the bearers of a tubal pregnancy. The usual statement, crudely put, involves a skipping of the period at the regular time with some bleeding before the time for the arrival of the next regular period. The variations show the most widely different phases. Thus, in one case (No. 184[1], a tubal rupture), the last menses before admission had taken place seven weeks previously, and there had been no bleeding or spotting of any kind up to the hour of operation. The other extreme is seen in No. 186, a tubal abortion, in which there had been constant bleeding for eleven weeks prior to admission after an amenorrhea of two weeks. Between these two forms, every variety of hemorrhage can be found.

It must be noted, however, that profuse bleeding in ectopic pregnancy is a rarity, and that its presence may usually be regarded as a sign that the condition is rather one of interrupted uterine pregnancy. In our series but four patients reported their bleeding as profuse, and in none of these did it last more than two weeks out of five or six weeks of unusual hemorrhage. A further study of the cases reveals the fact that profuse bleeding is recorded only in cases of rupture of the tube or of hematocele, and it also appears that the bleeding became more profuse at the presumptive time of rupture or abortion.

Scant bleeding or spotting is the rule in the majority of cases of ectopic pregnancy, and a moderate metrorrhagia is also not infrequently noted. In our thirty cases, eight patients reported slight spotting, four profuse bleeding, eleven moderate hemorrhage and two no bleeding whatever. One patient (No. 183, ruptured tube one day before admission), had bled profusely only the day before her operation.

The question of intermittent or of constant bleeding has been carefully investigated. Of the thirty cases, there are notes of 26 on this point. Sixteen of the patients bled constantly for a certain length of time and the flow subsequently became intermittent. In ten cases, the bleeding was of an intermittent nature only. In the former series of sixteen, we find many varieties in the character of the flow, some bleeding a little every day, some bleeding constantly for a time, the flow later becoming intermittent, and others bleeding for a time with subsequent entire cessation of the flow. There is evidently, then, no type of vaginal bleeding in cases of ectopic pregnancy, the main element which marks it being its great irregularity.

The appended table shows clearly the type of bleeding in the twenty-six cases:

Case No.	Probable Duration of Pregnancy.	Period of Amenorrhea.	Type of Bleeding.
284	One month.	None.	Constant.
285	Two months.	One month.	Constant for one month.
276	One month.	One month.	Constant.
275	Five weeks.	One week.	Constant for one and one-half weeks.
274	Five weeks		Intermittent.
273	Eleven weeks.	Two weeks.	Constant for six weeks.
272	Two months.	Six weeks.	Constant for two weeks.
278	Six weeks.	Two weeks.	Constant.
279	Three weeks.	Six days.	Constant for six days.
280	Two and one-half months.	Nine weeks.	Constant for two days before admission.
281	Five weeks.	Seventeen days.	Intermittent.
282	Seven weeks.	Two weeks.	Constant for two weeks; amenorrhea for nineteen days, constant since.
178	Nine and one-half weeks.	Two weeks.	Constant for five weeks.
179	Eight weeks.	Six weeks.	Intermittent.
181	Two months.	Five weeks.	Constant for three weeks.
182	Two months.	One week.	Intermittent.
184	One month.	Two weeks.	Constant for two weeks.
185	Three months.	Two weeks.	Intermittent.
186	Three months.	Seven weeks.	Intermittent.
271	Two and one-half months.	Three weeks.	Intermittent.
269	Eight weeks.	Five weeks.	Constant for three weeks.
270	Six weeks.	Four weeks.	Intermittent.
187	One month.	Eleven days.	Constant five days, then intermittent.
189	Seven weeks.	Four weeks.	Constant for three weeks.
192	Seven weeks.	Four weeks.	Constant.
277	Seven weeks.	Four weeks.	Constant for two weeks.

In the preceding table the period of amenorrhea is given. This naturally varies with the length of the pregnancy but there are evidently other factors which come into play. The varyingly intense congestion of the uterine mucosa in different cases[1], accounts for the hemorrhage from this organ and for its appearance at different times in different cases. It is probable, too, that the casting off of the uterine decidua has some bearing on the metrorrhagia. In the present series of cases, the longest period of amenorrhea was nine weeks, the average for the thirty cases being 3.4 weeks. In one instance there was no amenorrhea at all, the flow starting at once upon the cessation of the menses.

Pain.—Next to irregular bleeding, the most characteristic symptom of ectopic pregnancy is pain of one character or another. The character of the pain varies considerably. Three of the patients described their pains as like those

1 The numbers refer to the gynecological cases for the year.

1 Cazeaux, Revue prat. d'obstetrique et de pediatrie, November, 1903.

of labor differentiating them sharply from the cramp-like pain sometimes seen in tubal pregnancy. It is likely that these labor pains are only the accompaniment of the expulsion of shreds of uterine decidua or of blood from the uterus, for all these patients added that their pains were followed or accompanied by the appearance of blood. In two of these cases there was found a ruptured tube, in one a tubal abortion.

Eight patients described their pains as sudden and sharp, localized, as it appeared, over the affected tube, and varying from two weeks to two days before admission in its appearance. Of these four presented ruptured tubes, two, tubal abortions, and one each a hematosalpinx and an unruptured tube.

Eleven patients complained of cramp-like pains in the abdomen. In some of the cases this was not sharply localized but extended over the entire abdomen or its lower part. In the greater number of instances, however, the cramps were referred to the region of the affected tube. Their intensity also varied, some patients complaining of intense pain, others averring that it was only uncomfortable. Of these eleven cases, five were found at operation to be hematosalpingitides, three were tubal ruptures, three were tubal abortions and one was an unruptured tube. The cramp-like pain is now generally and quite properly accredited to the effort of the tube to rid itself of its contained ovum, or if this has already escaped, of the clot remaining in its lumen.

Bearing-down pains were noted by four patients, two of them in cases of ruptured tubes, two in cases of tubal abortion. Of these one was an intraligamentous rupture with the development of a large mass, one was a hematocele, and the other two showed moderate amounts of blood in the general peritoneal cavity.One patient complained of pain only when sitting, which was relieved by lying down, and two patients had greater pain on walking than at other times, one of these (a patient with a ruptured tube), having noted a sense of fulness in the pelvis on standing and walking. But a single patient said she had no pain whatever, her tube being the seat of a hematoma.

There are, as will be seen, no typical or classical pains by which we can distinguish the various forms of ectopic gestation. In cases of hematoma and tubal abortion cramp-like pains appear to be more common, but they are seen also in other forms of extra-uterine pregnancy. It is unfortunate that we can find no differential points to distinguish the various types by clinical signs; the examining finger must after all remain the principal guide to accurate diagnosis.

Twelve patients stated the character of their pains as constant or intermittent, four saying they were continuous, and six intermittent, two having pain which varied in its intermittency, at times being constant. There seems to be no relation, however, between the lesion and the constancy or intermittent character of the pain.

There were frequent complaints of vomiting after the onset of pain, twelve patients emphasizing this fact. Of these six were the subjects of ruptured tubes, one of an unruptured tube, two each of a hematosalpinx and a tubal abortion, and one of an intramural pregnancy. Unquestionably this vomiting was of so-called reflex character, provoked often by the presence of blood in the general peritoneal cavity, all the patients but one having this condition present. It is likely, too, that the pelvic peritonitis which often accompanies ectopic pregnancy may account for the vomiting.

The following table shows clearly the relation of type of pain to the lesion found at operation:

	Labor Pains.	Sharp and Sudden Pain.	Cramplike Pain.	Bearing-Down Pain
Tubal Rupture.....	2	4	3	2
Tubal Abortion.....	1	2	2	2
Hematosalpinx		1	5	
Unruptured Tube....		1	1	

Symptoms of Pregnancy.—Six of our patients considered themselves pregnant at the time of their admission. They had reached this conclusion on account of their symptoms—the amenorrhea, nausea and vomiting, frequent urination and painful breasts.

It does not always follow that an ectopic pregnancy is necessarily accompanied by the usual recognized symptoms of intra-uterine pregnancy. Indeed these symptoms are often strikingly absent. I have carefully gone over the histories of these thirty patients, however, and find that whereas in seven no record at all is given, the remaining twenty-three showed some interesting facts. Thus, eleven of them suffered from nausea and vomiting, while five had no such phenomena. Three had noticed enlargements of the breasts but seven had not observed this, nor had any of the patients noted the darting signs so common in early pregnancy. Four complained of frequent urination whereas nine did not suffer from this annoyance.

A résumé of these figures shows quite plainly that while the phenomena of early pregnancy are not by any means incompatible with the presence of an ectopic pregnancy, they are absent more frequently than they are found: a history of pregnancy, on the other hand, does not militate against the diagnosis of a pregnancy located in the tube.

Pulse and Temperature.—In the cases of freshly ruptured tubal pregnancies, the pulse was naturally much accelerated. In three of the cases it was imperceptible at the wrist at the time of operation, but these patients all recovered, a demonstration of the oft-repeated observation that women stand the loss of blood well. In other cases, usually those of rupture, the pulse was often 120 or higher at the time of admission. Unless there has been considerable bleeding, however, there seems to be no especial tendency toward rapidity of the pulse in tubal pregnancy.

The temperature, on the other hand, is usually somewhat elevated. Eighteen of our thirty cases had temperatures above the normal before operation. Eight of the thirty patients were operated upon immediately after admission and their temperatures were therefore not taken. Fifteen of the eighteen who had elevated temperatures had blood in the general peritoneal cavity either from rupture of the tube or from tubal abortion. Their temperatures were as follows:

99-100°	100-101°	101-102°	104° Fahrenheit.
9	8	1	1 (Infected Hematocele).

It is plain, therefore, that omitting consideration of inflammatory conditions, the preoperative temperature in cases of tubal pregnancy is due to the presence of blood in the free peritoneal cavity. Although it is needless to consider the elements which cause a rise of temperature in the presence of a foreign body of any kind in the peritoneum, we know that blood and even salt solution will bring this about. It must not be forgotten, however, that, as mentioned above, a pelvic peritonitis of more or less severity is a usual complication of tubal pregnancy and this may serve too as a causative factor of the temperature.

The practical bearing of moderately elevated temperature in the differential diagnosis of tubal pregnancy, when infection of any kind can be excluded, is evident. A normal or ordinary uterine abortion with which this condition is most frequently confused, gives rise to no deviation of temperature. Given a history, then, suggestive of tubal pregnancy, with a moderate rise of temperature, the suspicion will be strengthened if the other essentials for the diagnosis are present.

Tenderness.—One point which has been brought out with great clearness in this study is that the mass which is felt next to the uterus in cases of tubal pregnancy is almost invariably tender. The text-books but barely mention this fact; indeed few of them speak of it at all.

We have found that tenderness on palpation is a very constant finding in all our cases of ectopic gestation. Among the thirty cases, a note is made in twenty-three of the result of the pelvic examination in this particular. In twenty-two of these, the record distinctly states that tenderness or sensitiveness was present over the mass adjacent to the uterus, in the great majority of cases exquisite tenderness being complained of. This was entirely independent of the character of the lesion present; it was found equally in cases of tubal abortion, of ruptured and unruptured tubes, and of hematoceles. The cause of this sensitiveness lies undoubtedly either in the compression of the distended tube or in the peritoneal adhesions so often present. Whatever its origin, it offers a practical diagnostic point taken in connection with a history suggestive of ectopic gestation.

Abdominal Rigidity.—Ectopic pregnancy seems to offer an exception to many intra-abdominal lesions in that the abdominal wall is not often rigid. Rigidity is noted in six of our cases, whereas, in five the abdominal wall was especially lax. In other words, the abdominal wall may or may not be rigid, but the absence or presence of rigidity has no diagnostic significance.

Previous Pelvic Disease.—In view of the widespread belief or, at least, frequent assertion, that inflammatory pelvic disease is a prominent factor in the causation of extrauterine pregnancy, I have carefully investigated the histories and operative findings in the thirty cases to ascertain the extent to which this held true. Two of the patients gave a history of fever following a former puerperium; in one of these a hyposalpinx was found opposite the affected tube, in the other the pelvic organs were normal. One patient only had had previous gonorrhea and another had been operated for pyosalpinx on the opposite side a year previously.

But one patient in the whole series presented a typical history of pelvic inflammation. She had had repeated abortions and after her third labor had suffered from a purulent endometritis. At the operation for her tubal pregnancy, there was found an intense pelvic peritonitis on the left side with an unruptured tubal pregnancy in the tube which ran over a large ovarian cyst. On the right side there was a smaller, adherent ovarian cyst. No other patients presented pelvic inflammations of any kind.

We have, then, but five patients, or 16 per cent., who gave any evidence of previous pelvic inflammatory processes.

Whatever may ultimately prove to be the etiological factor or factors of ectopic pregnancy, it is certainly evident that a previous gonorrhea or pelvic inflammation alone is not responsible for it. It seems rational to believe that not one but many elements enter into the causation of the condition. In one case it may be endometrial or pelvic inflammation, or a congenital or acquired tubal anomaly, while in another it may be atavistic or improper or premature nidation of the ovum; or the fault may even lie with the spermatozoa. We do not know and it is unwise and unscientific to allege that any one of the elements named, or other factors, are responsible for the many cases of ectopic pregnancy constantly coming under observation.

Conclusions.—1. Sterility does not necessarily precede the development of ectopic pregnancy. If it does exist, its cause is often the same as the cause of the abnormal pregnancy.

2. The main characteristic of the bleeding in ectopic gestation is its great irregularity, there being no type. As a general rule it is not profuse. It may be constant or intermittent, and its character or profuseness has no relation to the type of the lesion. A chilly feeling often accompanies the bleeding, and vomiting and nausea may accompany the first flow. The uterine flow has apparently no connection with the death of the fetus.

3. The pain in tubal pregnancy is usually localized over the site of the lesion. It has no definite character; it may be cramp-like over the affected tube, it may simulate labor pains, it may be sharp and sudden, or it may be of a bearing-down nature. The pain during a tubal abortion and that concomitant with the presence of a hematosalpinx is usually cramp-like.

4. The usual symptoms of pregnancy may be present. They are frequently absent but their absence does not militate against the possibility or probability of an ectopic pregnancy.

5. Tenderness on palpation of the mass adjacent to the uterus is of great diagnostic value when taken in connection with the history and the other pelvic findings.

6. A rise of temperature between 99° and 100° F., in the absence of signs of infection is worthy of consideration in the diagnosis.

7. The causative factors of tubal pregnancy are probably numerous. Not one element but many may bring about the connection in different instances. It is likely that atavistic tendencies, congenital or acquired anomalies, pelvic inflammations, ovarian and tubal disease, all play a rôle in individual cases; but none of these factors alone is sufficient to explain all cases.

8. We have as yet no definite data by which we can differentiate diagnostically between all the varieties of ectopic gestation. Occasionally this may be done, but it is impossible always to distinguish between an unruptured tube and a tubal mole. A hematocele and a freshly ruptured tube can almost always be differentiated from the other usual lesions.

The value of Werth's dictum to regard every unruptured tube in the light of a malignant neoplasm, has not diminished with the years.

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THE TREATMENT OF CHRONIC NASAL CATARRHS WITH SULPHUR.[1]

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The chronic nasal catarrhs are encountered in the daily work of the general practitioner and by their persistence for years or through life are a constant factor in the consideration of individual health and comfort. Their frequency will not allow them to be disregarded or relegated to the hands of those especially skilled and experienced in their treatment, for were experts to devote all of their time and energy to the cure, the material would simply overwhelm the operators.

The chronic nasal catarrhs are often a sequel to other diseases, while they in their turn may beget still other and dangerous maladies. It therefore follows from the frequency of their occurrence as well as from the interconnection of other local and systematic diseases that the man in general practice is from necessity compelled not only to recognize these catarrhs, but also that they are a factor in producing other disturbances of health present and to come. In undertaking to cure some disease in the field of his own work his task may be incomplete or futile unless at the same time he is able to cure or ameliorate the persistent disturbance in the outer portion of the respiratory tract.

The specialistic treatment of the chronic nasal catarrhs requires knowledge, skill and the acquired technic of practice, not only in the application and variation of remedies but also in sundry surgical procedures for making occluded air passages pervious. These different manipulations must properly remain the domain of him who has fitted himself by constant application in the treatment of suitable and selected cases, yet when these are provided for, the multitude of milder, latent, indolent and apathetic subjects, is left without relief.

The nasal cavities are the great depot for the reception of any germ or spore of any nature which can be carried by the atmosphere. In health they may there be found in any individual who has exposed himself to their reception; although a deleterious action by their presence may never be apparent. If this be true of the state of health with normal membranes, glands and secretion, it demonstrates insusceptibility or immunity should the germ be virulent. In chronic nasal disease, however, where membranes are altered, or partly destroyed, with submucous tissues congested or inflamed and glandular structures no longer functionating, with altered, infected and decomposing secretion and incrustation, together with surfaces without drainage, with heat and moisture always existing, the vitality and multiplication of pathogenic bacteria cannot but be increased with whatever power of infection they may possess.

The chronic nasal catarrhs prey upon the thin and weak, the unresisting constitutions; and by their development they produce impoverished blood, debility and more extensive disease of the respiratory organs, as well as of the adjacent ones of special sense, leading also perhaps as many insist to dyspepsias and their complications.

The atrophic or end stage of nasal catarrhs is incurable, but a systematic treatment that conserves functions not completely destroyed, that mitigates and cures constant symptoms, that lessens the concomitant debility and restores the threatened general health, seems very desirable. As a remedy fulfilling these requirements, for common use, the writer recommends sulphur.

Sulphur, without which dermatology would be barren in its therapeutics, has since antiquity been a familiar substance in medicine. It is styptic, desiccant, astringent, germicide, parasiticide and insecticide. It has never received a complete or perfect study and its most important medicinal properties, never having been fully considered, have been simply overlooked. It is

[1] Read at the Annual Meeting of the American Therapeutic Society, Philadelphia, May 4, 1905.

sufficient, however, here to view this element as a non-poisonous tegumentary antiseptic and preservative. That it has peculiar powers of healing when locally used, and that, too, in specific inflammatory processes, can be readily demonstrated, for examples, in the diphtheritic angina of scarlet fever, in suppurative and necrotic processes, as phlegmon and carbuncle or in peculiar infections like erysipelas.

Of late years a plausible theory has been uttered that the curative activity of sulphur is much enhanced by having it prepared in the form of a soluble compound or body and by inference that its simple uncombined state is more or less inert. This is a fallacy, because sulphur not in solution is quite active in all forms of its intrinsic powers, and although the "soluble forms" are likewise medicinally energetic, yet they are more strongly irritating and objectionable in color and odor.

The best galenical preparation is the official sulphur præcipitatum U. S. P., a light, impalpable powder, which by sufflation may be widely diffused through space.

In treating the several forms of chronic nasal catarrh, it is the custom of the writer to have the patient seated with head erect and the mouth open. The anterior nasal cavity is exposed with a speculum, the tip of the nose elevated and the sulphur freely and thoroughly blown in with a strong powder blower. This has been properly done when the powder appears from mouth and opposite nostril and an irritative cough results. The treatment is repeated upon the other side. The posterior nasal space and nasopharnyx may also be treated directly by way of the floor of the nose or fauces. These procedures are not entrusted to the patient unless unusually attentive to his own case. They are made two or three times a week for a month and once a week for the next two months. The local sensations of sulphur are not unpleasant. Occasionally in women it sets up a conjunctival hyperemia when used too profusely or accidentally blown upon the face, and in some females nasal irritation and pain are complained of. Then it is best to use the treatment but once a week. Except these minor objections the writer has seen none but beneficial results. With this method a considerable number of cases have been cured and the results seem uniform. Success of course requires a suitable selection, those in which there is no other primary nasal disease, deflection, deformity or growth requiring surgical methods.

The subjects of chronic nasal catarrh have an anemic look. Blood examinations amply confirm this. It is most noticeable in the young, and one of the earliest recognizable effects of free sulphur insufflations is a pronounced improvement in the color of the skin. It is with certainty that one can predict this change after one or two treatments.

To specify the several nasal diseases and wherein and how the value of sulphur can be elicited it may be noted that in *simple chronic rhinitis,* hypertrophic stage, the nasal discharge is diminished, the mucopurulent and purulent exudate becomes clear and much less, the intermittent nasal occlusion ceases, the dull frontal headache is gone, the manner brightens, the itching of the nose, sneezing and cough abate. The diffusedly swollen deep red membrane diminishes in size and lightens in color. *Intumescent rhinitis* is relieved. In *hypertrophic rhinitis* the effects are fair. In *atrophic rhinitis* the treatment cannot give such results as in the earlier stage. In *phlegmonous rhinitis* (furunculosis) the disease is often aborted and much relief given the pain and feeling of weight in the nose. In *simple chronic nasopharyngitis* (American catarrh) without organic obstructions the fulness and postnasal dryness, the postnasal dropping and incrustration, the hawking, expectorating and vomiting cease. Scabs and fetor, purulent and bloody discharges vanish; frontal and occipital headache, hebetude of mind and disinclination for work are gone. *Hyperplastic nasopharyngitis* is improved. *Scrofulous rhinitis* can be much helped, arrested or cured and secondary tuberculous infection of the cervical lymphatic glands prevented; likewise the ocular apparatus, the corneal surface and the eyelids preserved from extension of infection. This one of the initial periods of tuberculosis must be combated like all others with hygienic and constitutional adjuvants.

The immediate effects of the sulphur are to check the purulent irritating nasal discharge, heal the excoriations, improve the patient's pale and languid looks and stop the sniffling, sneezing, crust formation and odor. In *epistaxis* from any cause this treatment is one of the best applicable. It should, however, be reinforced with a gauze nasal tampon for twenty-four hours. The nose bleeding common in spring in young people and in children and recurring every day or two succumbs promptly to sulphur alone. Sulphur does not cure acute nasal catarrh-coryza, or "catching cold," to which all victims of the chronic forms are characteristically prone. This, as is well understood, requires in all cases such general treatment as hardens and invigorates the system and increases the weight of the body. As has been said, however, in chronic disease not requiring surgical aid and with the mucous membrane not destroyed by atrophic degeneration, sulphur gives much and lasting relief from all the persistent symptoms that torment existence, and it is maintained that it is as valuable as it is simple. As sulphur possesses such marked powers to cure nasal catarrhs it naturally follows that it may be a useful postoperative dressing, particularly in the surgery of the nasal cavities. That this is so the writer has convinced himself repeatedly. It possesses as such all the good qualities and properties of a perfect dusting powder, not the least of all being its hemostatic action.

TREATMENT OF THE INDIVIDUAL CASE IN APPENDICITIS.[1]

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Last November Dr. Parker Syms wrote an article upon appendicitis (*Annals of Surgery*) based on an analysis of 219 cases, 75 of which were personally operated upon, whereas 144 were operated upon by his assistants. In his own series of 75 cases the mortality was 6.6 per cent., whereas in the 144 cases treated by his assistants the mortality is 14.5 per cent. In his discussion of this paper before the New York Surgical Society Dr. Lilienthal reported 455 cases operated upon at Mt. Sinai Hospital during the four preceding years with a mortality of 10 per cent. The doctor heartily endorsed the position taken by Dr. Syms, adding that "when the symptoms were evidently receding upon admission to the hospital, an operation was *occasionally* delayed from hour to hour; but the operation was *never postponed* in the hope that the symptoms might recede."

Dr. George D. Stewart said that in his work at Bellevue and St. Vincent hospitals he had followed the plan suggested by Dr. Syms.

Dr. Rogers made the remarkable statement that most of the surgeons of New York were, he thought, in close accord with these views which, to quote from Syms, are as follows: "There is only one thing to do when the diagnosis is made and that is, operate." The rule might be modified, though rarely, and the reason ascribed for this extraordinary position is that, "in acute inflammatory condition in the abdomen the only way to ascertain its extent and seriousness is by operation." These quotations are made because they are recent and because they come from a surgical society to which we must often look for mature reliable advice.

It has been a good many years since the surgeons of the western country, who do a good share of work, have followed a plan of treatment which has a mortality so high. A Chicago surgeon (Ochsner) reports a mortality of 2.2 per cent. in a series of 1,000 cases including a period of practically three years. Another western hospital, St. Mary's (Mayos), reports 512 cases during the preceding year with four deaths, a mortality of eight-tenths of one per cent. During the past twelve months we have operated upon 231 cases with two deaths, a mortality of less than one per cent. No case was lost without operation and no bad case was turned over to an assistant. In six of the cases, in which the patients lived outside of Omaha, a second trip had been made, the condition not warranting an operation at the time of our first visit. All recovered.

Further reports may be quoted, but we have sufficient data to show that there is a great difference in the mortality between the eastern and very radical but fortunately smaller wing of the surgical profession and the conservative, analytical methods which have had origin and greatest encouragement among the western surgeons. There is a difference also in their methods of treatment based, it must be, upon a different conception of the pathology having origin in the appendix. That this pathology is most variable should, we think, be generally understood.

At least, three major conditions practically determine the course and severity of a given attack: (*a*) The infectivity of the mycotic agent which predominates in the inflammatory outbreak; (*b*) the amount of leakage, that is to say, the extent of the contamination at an early age; (*c*) the anatomical location of the appendix. To be more specific, all agree that a streptococcic peritoneal infection is very dangerous, but assuming that the perforation has been early (before adhesions have substantially formed) and the amount of exudate has been great, we then face what the English have called a "peritoneal catastrophe." Add to this a perforation near the tip of the appendix which reaches near the under surface of the liver, or if transversely located, perforation occurring practically in the middle of the abdomen, and we then face a dangerous infection at a point where protective adhesions are meager and more tardily developed. In other words, deeply located central infections do not have the early aid of the omentum (a condition which makes this disease more hazardous during the extremes of age) nor the supplementary support of the parietal wall along the borders of the abdomen.

These major considerations, we believe, are generally accepted by experienced observers. The real cleavage in views seems to originate upon points which are important, but minor in character, that is to say, there is some honest difference of opinion (1) as to the amount of infection the peritoneum, intelligently aided, may safely bear; (2) as to the method, which supports the peritoneum in this emergency, (*a*) by limiting the infection process, (*b*) by surrounding it with a barrier which offers at least a reasonable period of truce.

In the argument of these questions certain academic principles, we think, must be admitted; *e.g.*, that *rest* applied to an inflamed edematous segment of bowel promises the same substantial aid toward limiting the inflammation and encouraging resolution that it gives to other organs under like conditions. The promptness with which adhesions occur is favored by rest, and all admit that their development is an element of safety.

Arresting the peristaltic wave from above, that is to say, stopping its recurrent momentum from being expended upon a comparatively fixed, inflamed, edematous, septic segment, ameliorates the inflammatory progress so essentially as to

[1] Read before the Nebraska State Medical Society.

change the whole course and severity of a given attack; in other words, withdrawing food and avoiding cathartics, emptying the lower bowel by the repeated use of normal salt or standard enemata, encourages a peristalsis with a mild, gentle *origin* at the inflammatory zone rather than a painful, inefficient and damaging wave which *terminates* there. Want of agreement or a lack of appreciation of these major and minor but basic principles determining the course and outcome of a septic inflammation involving the peritoneum, having the appendix as its origin, leads to an even greater and certainly more serious diversity of views concerning the treatment.

No intemperate reference should be made to our eastern colleagues; they have been the pioneers, they have taught us valuable lessons concerning the pathology of this disease and pointed out its dangers. We wish only to be permitted to acknowledge a still greater achievement on their part, viz., that of openly retreating from a position which brings them an admitted mortality of practically 10 per cent. and to accept a course of management which has a mortality of from one to two per cent. It is not the interval cases, nor an inflammation confined to the appendix, nor the management of a localized abscess, that admits of debate, but it is especially the management of the sharp, progressive attack, *most often seen during the second day* with symptoms becoming more obtrusive on the third and even on the fourth days, that has led to views so divergent and regrettably to discussions so acrimonious.

The proportion of cases in which the symptoms quickly become overwhelming is quite small, whereas the number of cases, however sharp they may seem at first, which respond to the plan of applying rest to the inflamed zone and yet encouraging the escape of flatus, is surprisingly large. The fact that a case seems to be growing worse at the end of the second day is not an argument in favor of prompt operation, nor on the third day, and this statement applies to the fourth and sometimes to succeeding days. There is no definite time at which the above treatment (withdraw all the food, the frequent use of normal salt in the rectum *slowly* given, supplemented by ice-bags, the standard, or the molasses and milk enemata) will succeed in bringing away flatus. It may require twenty-four or forty-eight to seventy-two hours. But this one observation may be accepted as fixed, viz., if gas does not escape in a severe attack *before* operation, peristalsis will practically never be established *after* operation.

With the escape of gas the left side of the abdomen becomes softer, the actual limitations of the inflammatory process becomes more palpable, the opportunities to reach a suppuration safely, either by the intra- or the extraperitoneal methods are greatly advanced. If the extraperitoneal method can be employed, drain the abscess and stop. If the intraperitoneal method must be used, the operation really consists in the intelligent use of gauze tampons and the control of the pus as it escapes from the slowly opened abscess. Brisk, careful sponging allows practically no contamination of even the small, exposed area of peritoneum.

There is a class of cases, which we believe to be small, in which the above management does not lead to a horizontal recession of symptoms. The abdomen especially remains rigid throughout. The other symptoms reach and remain at the danger line. There is in these cases, so far as the clinical evidences can be interpreted, a general peritonitis. Some gas may escape, but the left side of the abdomen remains hard. These cases require drainage of the peritoneal cavity for the purpose of relieving tension (pressure) and absorption, but they do not need sponging and irrigating or extended search for all the pus.

In our series of 231 cases, above mentioned, 71 were suppurative; of these four assumed the type known as acute, general, septic, peritonitis, with one death; the 216th in the list; the remaining death, the ninety-first, was an interval, but very adherent, case, which died from hematemesis, there being a history of gastric ulcer three years before.

DISEASES OF THE PANCREAS.[1]

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The pancreas, the most secluded organ in the abdomen, has at last yielded up a part of the secrets of its hidden and one-time hopeless inflammations. A study of the new light shed upon its history is intensely interesting and important.

This organ is absolutely necessary to life and until lately has not been studied relatively to its importance. Its parts on the right extremity, are the head and the neck; the latter is due to the superior mesenteric artery and vein. On the left are the body and the tail. The pancreas is six inches long, two inches broad and a half an inch thick, weighing two to three ounces. The general structure is almost identical with the salivary glands. The development is from the duodenum opposite the liver; both ducts slide around until they are contiguous, drawing back a portion of the intestine to form the diverticulum of Vater; this pouch which is the common outlet of the ducts has a great power for evil, holding gall-stones and thereby forcing gall through the pancreatic duct, causing the havoc to be described later.

Paul Langerhans, in 1869, discovered groups of cells in the center of the lobules which stain differently from the remainder, called the islands of Langerhans. They produce an internal secretion similar to adrenalin, which enters the blood by way of the thoracic duct, its office ap-

[1] Read at Kansas State Medical Association, Wichita, May, 4, 1905.

parently is, after uniting with a muscle ferment, to reduce the sugar in the blood. The digestive ferments of the pancreatic juice are trypsin, acting on albumin, steapsin, acting on fats, amylopsin, reducing starches, milk curdling and sugar-splitting ferments. On the basis of physiology, histology, pathology and embryology, the pancreas represents an organ within an organ.

Diseases of the pancreas are frequently combined with diseases of neighboring organs; the disease having extended from these organs to the pancreas, or vice versa. For these reasons as well as others, the diagnosis is extremely difficult. Diseases of the pancreas may be divided clinically into acute, subacute and chronic. Acute pancreatitis has a very high mortality and runs a course of fearful rapidity. Its etiological factor is doubtless a gall-stone in the diverticulum of Vater, preventing escape into the intestine, and the contractions of the gall-bladder forcing gall into the pancreas. The fat-splitting ferment acting with threefold power in the presence of gall, together with the other ferments of the pancreatic juice, destroys portions of the organ with resulting hemorrhage and escape of pancreatic elements into neighboring tissues. Death is due to hemorrhage, absorption of toxins, and pressure on the solar plexus. The diagnosis is very difficult and may be confused with gall-stones, peritonitis, intussusception, intestinal obstruction, ulcers of the stomach and duodenum, and possibly appendicitis and extra-uterine pregnancy. The disease is characterized by sudden onset in a patient previously healthy; excruciating pain in the upper abdomen, occurring in paroxysms, aggravated by motion, point of greatest tenderness, one inch above the umbilicus, persistent vomiting and collapse. Later, constipation, distention of upper abdomen, slight jaundice, fat necrosis in abdominal cavity, glycosuria, rare in early course, as the islands of Langerhans are usually the last structures affected.

Intestinal obstruction is differentiated by greater distention of abdomen, peristaltic waves, can be felt, seen and heard, obstipation is absolute, vomiting becomes stercoraceous, lesion is lower in abdomen, collapse is delayed. Biliary colic is distinguished by pain on the right side radiating to the right shoulder; in pancreatitis pain is in the median line, radiating to the left.

Perforations of the stomach and duodenum usually have a characteristic history, liver dulness disappears from escape of gas, vomiting subsides, peritonitis develops rapidly.

Appendicits is eliminated by testing for tenderness at McBurney's point.

The secretions from an injured pancreas, when mixed with blood, are very toxic, and may so affect the peritoneum when in the cavity that death will result. It will be remembered that pancreatic disease with its attending pressure on the solar plexus, formed a part of the symptom-complex of President McKinley's case, and proved so puzzling to the attending staff, that some of them suggested that the bullet had been poisoned with the toxins of some bacteria, to insure fatal results. The following is a quotation from the report of H. R. Gaylord, on the autopsy: "The extensive necrosis of the pancreas would seem to be an important factor in the cause of death, although it has never been definitely shown how much destruction of this organ is necessary to produce death."

In hemorrhagic pancreatitis the demand for prompt operative procedure is as urgent as in fulminating appendicitis. The surgeon may reach the organ from the left, the right, above or below the stomach, or from the back through an incision in the left costovertebral angle. The two latter are the most successful for drainage. Early operation for drainage is necessary on account of the exudate. If no operation is attempted and the patient escapes immediate death, pancreatitis of a chronic form, retention cysts, purulent or gangrenous conditions are highly probable.

Wiessinger reports two cases diagnosed during laparotomy, from fat necrosis. Incision and drainage effected a permanent cure. This report is given one year after operation. Hones, in the *Lancet* of February 18, 1905, reports a case of acute hemorrhagic pancreatitis, recognized and operated upon successfully. The patient vomited, epigastrium was tender, with localized swelling, abdomen was distended, the pulse 128, temperature 96.2° F., peritoneal cavity contained three pints of bright red blood. There was fat necrosis in the lesser sac.

Chronic disease of the pancreas may develop from the acute; from purulent conditions or neoplasms in neighboring organs; by infection from the intestine, may result from general or local tuberculosis. Cultures of typhoid bacilli have been found in the organ following an attack of fever. It may result from excessive use of alcohol, developing with cirrhosis of the liver; at least 10 per cent. of the latter disease develop glycosuria. Gangrene of the legs is usually if not always accompanied by pancreatic lesions.

Several additional tests have been suggested for recognizing chronic pancreatitis. The presence of sugar in the urine shows its existence to be highly probable but not certain. Several feeding tests referring to obstruction of the duct, are as follows:

Pancreatic juice alone will digest the nuclei of muscle fibers; feed meat wafers and examine feces. Pancreatic juice only will break up salol; examine the urine for the end products of carbolic acid and salicylic acid. If this juice is absent fats will be found in the feces; examine stools. If the duct of Wirsung be obstructed, in 70 per cent. of cases the secondary duct of Santorini is incapable for various reasons of discharging much pancreatic juice.

Dieckhoff, who is a famous authority on the pancreas, reports the following 53 cases: Acute

pancreatitis, 5; chronic pancreatitis, 15 plus (4 of doubtful diagnosis); carcinoma, 4; degenerative atrophy, fatty degeneration and fatty tumors, 21; cysts, 4. Total 53.

Draper, of Boston, in 4,000 autopsies found 19 cases of pancreatic hemorrhage, in 10 of which no other cause of death could be found. That is to say, at least one death in each 400 is from a cause that most of us never attempted to recognize.

A study of diabetes is inseparable from a study of diseases of the pancreas. Cohnheim has shown that by grinding frozen pancreas and frozen muscle, and pressing in a powerful press, neither extract will dissolve sugar in the blood. But by mixing the two extracts the sugar is rapidly decomposed. Conclusion, the internal secretion of the islands of Langerhans circulates in the blood with sugar until the muscles are reached, where the action of a second ferment causes sugar to be oxidized, forming heat and energy just at the point where it is needed.

Not all diseases of the pancreas produce diabetes, and not all diabetes is produced by diseases of the pancreas. Diabetes may be caused by: (1) Claud Bernard's puncture of the floor of the fourth ventricle, and perhaps by other nerve lesions; (2) by administration of certain drugs; (3) deducing from Cohnheim's experiments, perhaps from muscle abnormalities; (4) the liver may cause an overproduction of glycogen.

Interacinar pancreatitis, which destroys the islands of Langerhans, causes diabetes. Interlobular pancreatitis may be far advanced, and yet not affect these islands and no diabetes appear.

Hansemann, in the Berlin Pathologic Institute, prepared the following report of 73 cases: Diabetes without diseases of pancreas, 8 cases; diabetes without any statement concerning pancreas, 6 cases; diabetes with diseases of pancreas, 40 cases; diseases of pancreas without diabetes, 19 cases. Total 73.

Of the 40 cases, 36 were simple atrophy, 3 were fibrous in duration, and 1 a complicated case.

Prophylaxis in pancreatic diseases, as far as known, is a short chapter. Limit the use of alcohol to avoid cirrhosis of liver and pancreatic disease; treat syphilis to avoid arterial sclerosis; above all, remove gall-stones without waiting for nature to pass them, and perhaps have the bile forced into the pancreas with fatal results.

Treatment.—Surgical treatment has given good results. When the head of the pancreas is distended, an opening into the gall-bladder, with drainage, has cured a series of cases with a mortality of only four per cent.; this seems to us a very indirect approach to the subject. Incision in the long axis of the organ, with drainage below the stomach, or through the left costovertebral angle, seems the most scientific treatment; the latter avoids entering the peritoneal cavity. We hope that the time has come when no surgeon on discovering fat necrosis in the abdominal cavity, will hesitate to drain the pancreas. These small white spots of necrosis, in the mesentery are sometimes mistaken for miliary tuberculosis and are caused by the fat-splitting ferment changing the fat into glycerin, which is absorbed, and fatty acids, which remain in the dead cells, and give them the peculiar appearance. Medical treatment is of little value. Pancreatic extract may be given to aid digestion: iron and mercury have been tried, but all efficient remedies yet remain to be discovered. They may be described in a sentence from Tennyson:

> "The fair new forms,
> That float about the threshold of an age,
> Like truths of science waiting to be caught."

MALARIAL HEMOGLOBINURIA.[1]

BY LORIN A. GREENE, M.D.,
OF GREENVILLE, FLA.

In this article the author makes no pretense of presenting any new or startling scientific discoveries, but intended simply to relate some few personal experiences with resultant deductions, in the hope that a discussion may be incited that may benefit those of us who have in the past, or may in the future, come in contact with this grave form of pernicious malaria.

The pathology of an ordinary tertian or quartian malarial infection, with its severe, yet rapid, cycle of development, is well understood by all, but in the pernicious forms of malaria the lesions are so varied and inconstant that some new clinical aspect presents itself in almost every case. The gross blood changes, as we all know, consist in a marked diminution of the red corpuscles and a diminution of the amount of hemoglobin even in those cells which do not contain parasites or their spores. There is, as a rule, a relative increase of the large mononuclear leucocytes.

In every estivo-autumnal infection, a few days after the initiatory symptoms appear blood examination reveals large numbers of the adult crescents. The exact nature of these bodies, until recently, was problematical. Recent research has shown that these bodies represent the highest development of the estivo-autumnal parasite, their peculiar function being the propagation of the species in a cycle outside the human body. It has long been a demonstrated fact that some of the more mature ameboid forms of the tertian and quartian parasites, and the crescentic form of the estivo-autumnal parasite, remain circulating in the blood without effort at segmentation.

However, if a fresh slide of this blood be taken and allowed to remain for a few minutes in a moist chamber certain phenomena occur which are not seen in a specimen examined immediately after its withdrawal. Some of the mature organisms liberate long flagella, which are actively motile and immediately enter other mature forms.

[1] Read before the Florida State Medical Society, at Jacksonville, Fla., April 19, 1905.

It has been observed in stained specimens that each flagellum contained some of the nuclear chromatin of its parent body, and that this chromatin in the flagellum united with the chromatin of the organism which was entered by the flagellum.

Under the same conditions the adult crescentic form pursues the same cycle, the male crescent giving off flagella, one of which in turn fertilizes a crescent slightly different in morphology, presumably a female crescent. This process is evidently sexual in nature, and as the phenomena have never been observed except in blood which has been for an interval withdrawn from the body, it is the natural conclusion that under ordinary circumstances fertilization takes place outside the human host. These conjectures have recently been verified and the process of fertilization and maturation has been demonstrated in the stomach of a mosquito, the genus *Anopheles*. After a patient with an estivo-autumnal infection is bitten by the mosquito, the parasites in the stomach of the insect undergo a complicated cycle of reproduction analogous to the one described as taking place in a fresh slide preparation, and the resulting spores or ameboid bodies are deposited in the salivary gland of the mosquitoes. Such an insect is then capable of transmitting to an uninfected person sporozoites sufficiently developed to require only a few hours for blood destruction to commence after their introduction. These spore forms enter the red cells immediately and may be distinguished from the ordinary ameboid forms by their oval outline and the abundance and coarseness of their pigment. After a few hours these forms disappear and a little later, when we have every clinical evidence of an estivo-autumnal infection, we may not be able to verify our diagnosis by the demonstration of the parasite or its spore. But we do find a general granular degeneration of red cells and a marked phagocytosis, which is an expression of nature's effort to dispose of free hemoglobin from cells that have been disintegrated by some powerful toxic agent from an apparently remote depot of infection.

Pathologically a hemoglobinuria is simply the presence of free hemoglobin in the urine, resulting from the disintegration of the red blood cells by the *Plasmodium malariæ* or some associated agent. In a number of cases that I have seen I have been firmly convinced that the agent which wrought such terrific destruction with the blood elements was not the parasite itself, but some toxin, the existence of which depended either on the assistance or presence of the *Plasmodium*. It has been observed by many on blood examination that granular degeneration of red cells unoccupied by parasites has been more marked than of those acting as a temporary host for a *Plasmodium*. The question might be asked why do we not have a hemoglobinuria as a symptom in every case of remittent malaria? While it is indisputable that we have a liberation of hemoglobin in every case, in the milder infections, or those of short duration, the free hemoglobin is converted by the relatively healthy liver into bilirubin. But in those cases of long duration or greater intensity the congested condition of the liver prevents that organ from performing its function, and the free hemoglobin is as a physiological necessity eliminated by the kidney.

In every discussion of this subject in which I have participated or been an auditor, the chief point of difference has been in regard to treatment. Some advocate the use of quinine exclusively, while others hold that quinine causes the hemoglobinuria and oppose its use in any case. In my own experience the use of quinine depends altogether on the stage of advancement of the case when seen by us.

We have shown in the paper that the estivo-autumnal parasite develops, but does not reproduce in the blood. We have also shown that the sporozoites leave the blood current early and that after they begin to disappear, and never before, do the hemoglobinuric symptoms appear. Therefore, knowing as we do the specific action of quinine on a blood-borne parasite, the immediate hypodermic injection of quinine is indicated when we find the spore forms in the blood or know from previous examination that they have not long since disappeared. Unfortunately we are often prevented from this procedure until the rapidly manufactured toxins are about to commence active blood disintegation, and then the appearance of hemoglobinuria immediately after the administration of quinine gives rise to the fallacy that the drug is the causative factor of the symptom. Therefore I would advocate the hypodermic use of quinine in every case of estivo-autumnal malaria before the appearance of hemoglobinuria. And after the first hemoglobinuric paroxysm, if the drug has not been previously administered, its administration is justifiable in the hope that some few spores may be retarded in development and the sources of the toxemia numerically diminished. But after a thorough cinchonization, if the hemoglobinuria continues, I fail to see the rationale of the continued use of quinine. After the disease has progressed thus far without any abatement of the symptom, we have a condition similar to many other systemic infections and should treat it accordingly.

It has been my practice to commence early with the hypodermic injection of bichloride of mercury and continue its use at indicated intervals throughout the attack. Although it is argued that stimulation of an engorged organ is bad therapeusis, nevertheless the powerful hepatic stimulation brought about by the use of bichloride of mercury is an imperative necessity. Calomel in large and oft-repeated doses is a valuable adjunct to treatment from an empirical standpoint, at least. It is necessary that

the excretory functions be maintained. The intravenous use of the normal saline solution has been most useful in my hands, and has in a number of instances brought about a reaction in patients almost moribund. The hyposulphite of soda in saturated solution has been highly recommended, but has in my experience proven of doubtful efficiency.

Thus, after the proper administration of quinine, the condition should be treated as any other condition where we have a systematic toxemia due to some localized lesion, viz., typhoid fever or lobar pneumonia. That is to say, our treatment should be directed along expectant lines maintaining stimulation and promoting elimination.

THE DOCTOR AND THE PUBLIC SCHOOL.[1] [2]

BY THEODORE TOEPEL, M.D.,
OF ATLANTA, GA.

THE purpose of this paper is mainly to call to the physician's attention the child and its environment during its school life from six to fourteen years. Though not every physican is a politician, yet his professional standing carries sufficient weight to influence public opinion. A great amount of good would result if doctors in general would interest themselves more in the child at school. I am sure they are just as capable of filling positions on Boards of Education as men of other professions, especially when one considers that in school matters the prime aim to be promoted is the child's physical and mental welfare.

If we take the child at six years of age, when he first enters school, and note the change of conditions which take place, we are astonished at the physical and mental changes occurring during this first year at school. A child is removed from the home surroundings, where he was accustomed to be natural in action and speech, where the little body had a chance to grow, where the mind could develop at will. This child of free play is now crowded into a room with fifty-nine others. He must learn to sit still in his desk, a limited space of two by three feet. He can move by command only, and talk only when he is asked. Is it not evident to every rational thinking physician that this change should be carefully and gradually made? Would it not be better to take these little folks at six, and put them into a large room devoid of desks, where there is better opportunity for free exercise? The establishment of kindergartens, with their preparatory course for the regular school work, should be more universal in the city schools of the South. The expense of equipping and maintaining these kindergartens is small, when measured by the great amount of good derived from them.

The curriculum, as it is now made up, is very heavy for grammar school children, and is very frequently the cause of physical retardation and nervous breakdown. Not only does the pupil suffer, but the teacher very seldom escapes the evil results of overwrought nerves in the attempt to accomplish all the work the curriculum calls for. The cry of alarm should be sounded by the whole medical world in opposition to this grinding system. Wisely thinking pedagogues have shown the way of ridding the curriculum of all that is merely theoretical, not practical and useful, and have pointed out what should be taught our school children. They have chosen those things which eventually are conducive to the betterment of the people physically, mentally and morally. These men, true educators, as it were, should have the loyal support of the physician, for he is the one man who sees the results of wise or unwise education, being the confidential counselor in many familes.

I take for granted that we are dealing with children of families where they were properly cared for. We shall find that, before the child was sent to school, he received his breakfast at 8 o'clock, a light lunch at 10 and a warm dinner at 12, or not later than 1 o'clock. Note the change after he has entered school. It is customary in the South to have one long session. That means the children must report at school at 8.15 A.M. and be dismissed at 2 P.M., with one-half hour recess. This gives five hours spent in the school-room. The child now has breakfast at 7 o'clock, he takes a cold lunch with him, which is eaten at 11 o'clock, leaves school at 2 in the afternoon, and, if he is fortunate in having a careful mother, he receives a little warmed-up food at 3 o'clock; otherwise, he waits for a warm meal at supper time. It is evident that the physical and mental development of children fed in this manner cannot be normal. It is convincing that the results of irregular feeding during three-fourths of the period of growth and development will manifest themselves sooner or later in some form of disease. Should not this question of proper feeding receive the attention of the physician? Would it not be better for pupils and teachers to have a warm meal at 12 o'clock, and at least an hour and a half for rest and recreation between sessions?

Unfavorable physical conditions are prone to foster contagious diseases, and the greatest care should be exercised, on account of the susceptibility of school children, not to expose them to such. Realizing the importance of this, many authorities have appointed regular visiting school physicians, whose duty it is to visit the schools daily, and examine all children whom the teacher has sent to his office in the school suspected of having any contagious disease. In New York an inspector must make his visits to the school assigned to him before 10 A.M. He first examines the children isolated by the Principal, and also the children who have been absent

1 Shaw's School Hygiene.
2 Read before the Georgia State Medical Society, Atlanta, Ga., April, 1905.

from school for a few days. Once a week he makes a routine inspection, consisting of a class to class examination of each child present. The children march by the inspector, pull down their own eyelids and open their mouths wide. Any one suspected of having any trouble is ordered to the inspector's office for a more thorough examination. By this method many unreported contagious diseases have been found. Defects of sight and hearing are systematically sought for once a year among all pupils. We know that the way to prevent disease is to teach the people the primary cause of it, and how to avoid contact with the causative agent. In the public schools the children should be taught more of the practical things that will be of use later in life, and less of the useless things, which they forget as soon as they leave school. Half an hour a week during a child's whole school period devoted to a good common sense talk on personal hygiene is of greater benefit to a child than all the memorizing of physiology as it is at present taught. Instead of putting literature into the hands of children on this subject, facts should be put into their heads.

The conclusions drawn from physiological investigations made in Europe and America into the distortion of the body, caused by the demands of school life, are startling in the extreme. Every condition should be eliminated which makes possible the acquiring of physical defects in school, as well as the accentuation of those defects which the child may have had before entering school. Improper chairs and desks, not conforming to the size of the body, must not be allowed in the room. I have seen children varying in height twenty-two inches seated at desks and in seats exactly the same in size.

A few words will be appropriate in connection with this paper as to the room and schoolhouse, where the child spends five hours daily for eight years. I will picture to you a standard school-room, as now required by many of the larger city school systems, and if any of the physicians present have received their primary instruction in a place with similar advantages they are fortunate. The school-room should be the unit to be considered first in planning a school building; it should not be a building cut up into school-rooms. A school-room must be so planned as to give to the pupils who are to occupy it what the laws of health demand. A standard school-room is thirty feet long, twenty-five feet wide, and thirteen feet high. Of the primary grades forty-eight pupils are seated in a room of this size, each pupil having fifteen square feet of floor space and a little more than 200 cubic feet of air space. In the grammar grades (fifth, sixth, seventh and eighth grades) forty pupils occupy a room of the same dimensions. Here every pupil has 18¾ square feet of floor space and 243¾ cubic feet of air space. The amount of glass surface to light the room well should be one-fourth of the floor space of the room, or 187 square feet, and there is an unanimity of opinion that the light should enter from the left. The color of the walls and ceilings should be of a greenish gray tint; the window-shades should be of the same color, but somewhat darker. Properly sloped desks, chairs with backs, both having some mechanical contrivance which will admit of their being raised and lowered to accommodate the difference in size in pupils and rapidity in growth, should be in every room. They should be placed in such a manner that the aisles run the long way in the room. Every child should have 30 cubic feet of fresh air every minute at a temperature of 70° F. The sanitary conditions of the school building should be the best that money can afford. There should be well-lighted closets, with the best plumbing; the floors in these places should be of hard asphalt. Special care should be exercised in regard to pure drinking water; the use of individual cups should be encouraged. Besides the daily cleaning of the school-house, the floors should be scrubbed twice a year; the walls and woodwork should be wiped and painted annually. Desks and seats are accumulators of dirt. They should be thoroughly cleaned with kerosene during vacation. Some of the progressive school boards of this country have instituted school baths like those of many European schools, the object being to teach cleanliness and physical exercise. The school buildings should be constructed of the best materials, put together in the most substantial way, and with the best workmanship available. They should be located most conveniently as to distance for the greatest number of pupils. They should be away from noise and polluted air. The site chosen should be elevated and well drained. The playgrounds should be on the sunny sides, and they should be covered with natural gravel.

The aim of education is to develop the child physically, mentally and morally, to make a worthy member of society and a patriotic citizen. The child's mental education has been well taken care of, and it is time that a vigorous crusade be made to do justice to the physical child. Owing to progress in science, we have come to appreciate more generally the truth of the saying: "Mens sana in corpore sano" (a sound mind in a sound body). It is time for the physician to interest himself in the great problem of a healthy education. The physician, who interests himself in school matters, is better qualified than many others to judge wisely on matters pertaining to school and those conditions which undermine physical development. With his knowledge of the human body, and the amount of work which each organ is able to perform, he is able to call attention to the needed periods of rest between studies; he can make good suggestions as to the improvement of hygienic conditions of school-rooms, buildings, etc., thereby removing indirectly many causes of disease, and by practising these preventive

measures he can make himself invaluable to the community. Let the doctors of this body unite in the endeavor to improve the environment of the child at school, thereby assisting in rearing a stronger generation of men and women, who are better able to perform conscientiously the many duties of an upright, noble life.

A CASE OF CERVICAL SPINA BIFIDA—SYRINGOMYELOMENINGOCELE WITH HYDROMYELUS AND HYDROCEPHALUS.[1]

BY D. J. DAVIS, M.D.,
OF CHICAGO.

The reasons for reporting this case are chiefly two: (1) The uncommon occurrence of spina bifida in the cervical region, and (2) the very unusual and rare form of the condition met with in this instance. A brief report of the clinical history is as follows:

Female child, aged eleven weeks. Entered St. Anthony's Hospital April 10, 1904. It was the illegitimate first child of a mother aged nineteen years who was healthy in every way. The child was bright and active and gave absolutely no indication of any paralysis. There was a moderate degree of hydrocephalus with some bulging of the eyeballs and rather large fontanelles. Low down in the cervical region in the median line posteriorly was a tumor about the size and shape of a half lemon, slightly constricted at the base and projecting downward. This gave evidence of a distinct fluctuation, was elastic, rather tense, and could be compressed. The whole was covered by a skin distinctly thinner than normal and on the dependent side of the mass examination revealed a small dimple in which no opening could be detected on gross examination. No other deformity in the child was noted.

An operation was performed for the removal of the sac on the morning of April 14. An incision was made through the skin near the base of the tumor. None of the arches of the vertebræ were absent and an opening was seen about the size of a lead pencil between the seventh cervical and first thoracic vertebræ, through which passed a pedicle leading from the sac containing a fluid into the vertebral canal. In attempting to follow down the pedicle the sac was ruptured and a quantity of clear fluid escaped. The pedicle was followed down to within 1 cm. of the spinal cord and there ligated and cut. The sac and pedicle will be described later. The whole tumor was removed and the wound closed. The child's temperature soon began to rise after the operation and on the night of April 15 it died in convulsions, the temperature reaching 107° F. shortly before death. An autopsy was held the following morning and an anatomical diagnosis made as follows:

Acute fibrinous spinal and basilar leptomeningitis. Recent infected wound between scapulæ. Spina bifida of the cervical region. Internal hydrocephalus. Suppurative inflammation of the ventricles of the brain. Bronchopneumonia of the right lung. Acute parenchymatous degeneration of the heart, liver and kidneys. Hemorrhage into the spleen. Cysts of the ovaries. Uric acid infarcts in both kidneys.

Bacteriological examination was made of fluid obtained from the ventricles of the brain, the subdural space of the spinal cord, the peritoneal and pleural cavities and of the heart's blood and some bloody fluid about the operation wound. From all these sources the *Staphylococcus pyogenes albus* was obtained in large numbers and practically in pure culture. Smears made directly from the fluids except the heart's blood showed gram-staining cocci. They were especially numerous in the fluid from the lateral ventricles and from the subdural spaces of the cord.

The internal viscera generally showed nothing of importance beyond the marked acute degeneration due to the severe infection, and it is to the changes in the central nervous system that attention will be chiefly directed.

The head was considerably larger than normal, the fontanelles being very prominent and the cranial bones slightly separated. On opening the cranial cavity the brain was found to be very soft and the pia was hyperemic throughout. A few flakes of fibrin were seen at the base and along the course of the middle cerebral artery on both sides. The lateral ventricles, the third ventricle, the foramina of Monro and the aqueduct of Sylvius were all very much dilated and contained a purulent fluid. The thickness of the cortex of the brain in the region of the motor area measured from 1.5 to 2 cm. The ependyma lining the lateral ventricles was thicker and more resistent than normal.

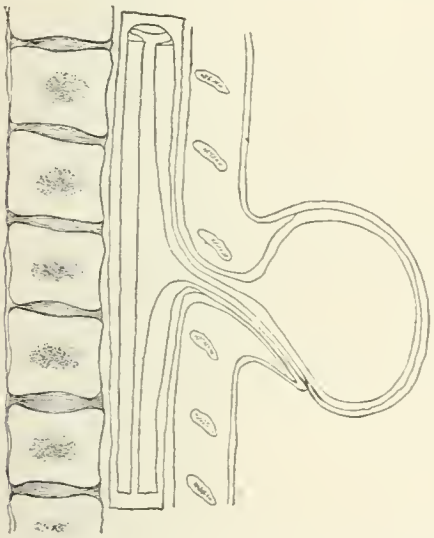
A recently sutured wound 4 cm. in length was present at about the level of the first thoracic vertebra. On cutting down upon the spinal cord some clotted blood was found outside the meninges. The dura was much distended by a purulent fluid and its inner surface was pink in color. The pia was very hyperemic and in places small flakes of fibrin adhered to it, especially in the portion near the seat of the operation. The vertebral canal was perfectly formed throughout except for the slight deformity above noted.

Spinal Cord.—The upper cervical, the greater part of the thoracic and the lumbar portions of the cord showed no changes on gross examination. At the level of the eighth cervical nerve there was a pedicle about 5 mm. in diameter projecting from the posterior surface of the cord. The base of this pedicle was broad and was formed largely by two ridges running up and down the cord corresponding to the posterior columns. This prominence of the posterior columns extended about 2 cm. above and below the pedicle. The length of the pedicle was nearly a centimeter, it having been sectioned at this point during the operation as already described. This short stump attached to the spinal cord on cross

1 From the Pathological Laboratory of Rush Medical College.

section was seen to be made up of three parts arranged concentrically. On the outside was the firm dura directly continuous with that of the spinal cord. Inside this was the delicate pia and in the center was a cord which showed on close examination a small opening in its center which apparently led into the central canal of the spinal cord. The sac removed at the operation showed on examination a smooth and rather tough lining directly beneath the integument. This ran down into the pedicle and though on account of the operation it could not be directly traced to the dura there can be no doubt that it is a continuation of this membrane. On the lower side of the sac beginning beneath the skin at a point just opposite the dimple is a small cord about a millimeter in diameter which runs along the margin of the sac and down into the pedicle, this being a continuation of the central part of the stump attached to the spinal cord. On microscopical examination this cord is seen to be a tube

Fig. 1.

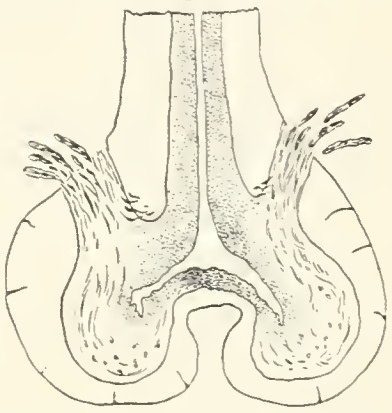


having a lining at least part of the way identical in structure with the skin and even showing sebaceous glands.

Figure 1 represents diagrammatically the relation of the various structures in the malformation, showing particularly the tube leading from the surface to the central canal and also the meningocele in relation with the subdural space.

Sections were made of the spinal cord directly through the pedicle and about 1 cm. above it; also through the upper cervical and through the lumbar and thoracic portions of the cord. The section of the cord through the pedicle (Fig. 2) shows a very much dilated canal triangular in shape, branches going out in the direction of the vertebral horns, and the other branch extending posteriorly, obliterating the posterior septum of the cord and passing into the tube of the pedicle. The fila of the nerves are not interfered with, and the posterior columns of the cord are simply pushed laterally. The ependyma of the central canal is well formed and may be seen extending for a distance into the pedicle. Around the central canal is a broad zone which is shown by special staining to be made up largely of neuroglia tissue. The section (Fig. 3) made about 1 cm. above the pedicle shows a central canal of much the same form. The canal here has also three horns, the posterior on passing up between the posterior columns pushing these outward and

Fig. 2.

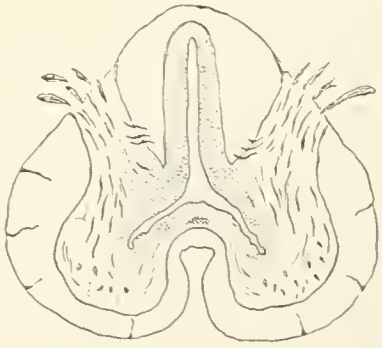


thus producing the ridge already referred to and the peculiar form as shown in the figure.

Sections through the lumbar, thoracic and upper cervical cord show a dilated central canal, it being especially marked in the cervical region. Sections at the various levels stained by the Pal-Weigert method show absolutely no degeneration of any of the fibers in the various columns.

To summarize, then, we have a condition of the central nervous system which shows a dilatation of the ventricles of the brain and their various communicating passages, a dilatation of the central canal of the spinal cord, and at the

Fig. 3.



level of the eighth cervical nerve a narrow tube leading from the central canal through a pedicle and opening on the lower side of the sac at the site of the dimple. The sac has a smooth lining which is apparently the dura and being in communication with the subdural space of the spinal canal may be considered a dilatation of the meningeal space. This is evidently then a meningocele, and because of the dilatation of the central

canal and the extension from the cord of a pedicle, the whole may be spoken of as a syringomyelomeningocele in combination with hydromyelia and internal hydrocephalus. There is therefore a general dilatation of all the cavities of the central nervous system with deformity of the spinal cord.

The above lesions indicate an imperfect development of the nervous system and from an embryological standpoint there is little difficulty in understanding what has occurred. During the developmental stages in the formation of the neural tube the edges of the medullary folds have for some reason failed to unite at a particular point and thus a communication has remained between the central canal and the surface. This very simple relationship as exemplified in this case in direct contrast to many cases of spina bifida which are often so difficult to interpret clearly is worthy of mention. It may be pointed out that it is in the upper dorsal region very near the location of the lesion in this case that the mural tube closes. From here the closing of the tube advances in either direction and consequently malformations are more common either higher up or lower down in the lumbosacral region.

The possibility of a rupture of the cord having occurred during fetal life, thus establishing a communication between the central canal and the outside, may with propriety be considered in this case. The delicate ventricles and central canal signifying probably an increase of pressure in these cavities, would tend to support such a consideration. This assumption would be in accord with the ideas of Förster and other German writers who look upon many cases of spina bifida as due to a dropsy of the central canal. Although it is difficult in many cases of spina bifida to understand how such a process might operate to produce the result, in such a case as the one here presented, the idea is quite plausible.

Von Recklinghausen thinks that most cases of spina bifida are due to an unequal growth of the canal and the cord and as a consequence a bending of the cord occurs in order to accommodate itself to the spinal canal; but this can apply only in certain cases and apparently need not be considered here.

The literature is particularly scant upon cervical spina bifida. As to its rarity one may obtain some idea from the report of the committee appointed by the London Clinical Society in 1885 to investigate spina bifida and its treatment. In a series of 125 specimens examined from various museums, not one case of pure cervical spina bifida occurred. In a series of 243 cases collected from the literature or specially reported to them the location of the tumor was stated in 226 and in this number there were 0 cases of cervical and 2 of cervicodorsal spina bifida; 4 of these 11 cases had hydrocephalus. Clutton [1] reports a case almost identical with the one here reported except that there was some dilatation of the pedicle of the cord about the meningeal sac; also there was no hydrocephalus and no hydromyelus except a slight dilatation of the central canal near the pedicle. Von Langenbeck has also reported a case of cervical spina bifida with a fissure leading into the central canal and with hydrocephalus. A number of cases of cervical spina bifida have been reported by surgeons, but as a rule a careful study of their structure had not been made and they were reported as simple meningoceles.

1 Trans-London Clinical Society, 1886.

MEDICAL PROGRESS.

MEDICINE.

Dangers of Illuminating Gas.—The perils of the domestic use of modern fuel and illuminating gas, now so generally used, are pointed out by Dr. H. LEFFMANN (*Journal A. M. A.*, June 3). The coal gas formerly employed was comparatively non-toxic, and its characteristic odor was a danger warning, but the modern water gas that has so largely replaced it in common use, with its larger content of carbon monoxide and its comparative lack of odor, is far more dangerous. Accidents from this cause are far more frequent than formerly, and carbolic acid and illuminating gas have replaced, at least in Philadelphia, he says, for suicides and accidental poisonings, the arsenic and laudanum of the Civil War period. A sleeper can easily absorb a fatal amount of modern water gas without being aroused, and Leffmann shows by a simple calculation how a very small percentage of carbon monoxide—less than one-half a grain, for example, to 100 c.c. of blood—can render useless its hemoglobin. Gas stoves for cooking are used generally only in warm weather when natural ventilation is good, and the danger from them is therefore lessened, but their burners are seldom furnished with a collar to regulate the air supply, and the combustion is therefore liable to be irregular and deleterious gases are given out. Gas "stoves" or heaters connected with the gas pipes by rubber tubing are objectionable on account of the liability of leakage, which is very great unless the very best tubing material is used. The stopcock on the heater is especially objectionable, as it is the one most convenient to use, and when used the leakage through the tube can go on unchecked. The precautions recommended by Leffmann are: Prevention of sale of inferior tubing; having no stopcocks on heaters unless they are connected to house mains by metal pipes with tight joints and such construction as will prevent the rubber tube, even when of the best quality, remaining in free connection with the house main when the gas is not lighted. He would also have heaters constructed so as to give a larger radiator effect with a given gas consumption, and would have them placed only where the products of combustion can escape freely into the chimney. All burners on the Bunsen principle should be provided with collars to regulate the air supply, and purchasers should be instructed in their use. The commonly used illuminating mantles may also be objectionable by interfering with combustion, especially when worn or displaced, and the flexible tube of the ordinary drop-light be also a source of danger like that of the heater.

Chronic Acetanilid Poisoning.—D. D. STEWART (*Journal A. M. A.*, June 3) reports two cases of acetanilid addiction, one of them at considerable length, and

refers to others in the literature. The symptoms in the severer cases of chronic poisoning by the coal-tar products are, he remarks, very similar as regards mental and physical debility. There is cardiac weakness, more or less pronounced cyanosis, and blood changes characteristic of the action of a hemolytic agent. But for the leucocytosis, the blood conditions would almost suggest pernicious anemia with their dimunition of the erythrocytes and changes in their size and shape, the presence of erythroblasts, often in larger numbers than pernicious anemia, of polychromatophilic cells, and of cells undergoing protoplasmic granular degeneration. There is usually a notable increase of blood plaques and a leucocytosis is common, the increase, it is reported, being usually in the polymorphonuclear elements. In Stewart's cases, however, which were uncomplicated, there were 37 and 35 per cent., respectively, of lymphocytes. He thinks that possibly in other cases there might have been some complicating disease influencing the leucocytosis and the proportion of polymorphonuclears. In Cabot's case, complicated with nasal carcinoma, while the blood had the characteristic chocolate hue, and the hemoglobin was therefore not estimable, there was a leucocythemia. Erythroblasts were lacking, methemoglobin was demonstrable in both blood and urine, and the patient's general condition was good in spite of the evident cyanosis. Such a case might superficially suggest, he says, the condition that has lately attracted considerable attention, chronic cyanosis with polycythemia and enlargement of the spleen. The difficulty sometimes attending the diagnosis in these cases has been noted by others, and stress has been laid on the characteritic anemia, etc.

Tumor of the Third Ventricle of the Brain.—R. T. Williamson (*Med. Chronicle*, May, 1905) adds one case to the eleven in the literature on this subject. While the presence of an intracranial growth was diagnosed during life, its exact location was only determined post mortem. The case recorded by the author presented simply the general symptoms of intracranial growth for a long period; the mental condition was not affected until the terminal coma commenced to develop; and indications of affection of the third, sixth and fifth cranial nerves did not occur until the last few weeks of life. In the eleven cases of tumor of the third ventricle which the author has collected from the literature, the nature of the tumor was as follows: sarcoma, 2; carcinoma, 1; papillary carcinoma, 1; papillomatous tumor, 2; colloid cystic tumor, 1; epidermoid cyst, 1; fibroid tumor, caused by mycotic infection, 1; chondrocystosarcoma, 1; actinomycosis, 1.

Hepatogenous Levulosuria.—The action of the various organs upon some sugars has been tested by E. Sehrt (*Zeitsch. f. klin. Med.*, Vol. 56, Nos. 5 and 6). Desiccated spleen, liver, etc., had very little influence upon glucose, but with pancreatic powder active glycolysis took place. This was still more marked if muscle power was also added, no matter if a third organ was present or not. It follows that the decomposition of glucose within the body probably requires the action of both pancreas and muscle. The extracts of these two tissues are, however, unable to split up levulose, and the experiments of the author prove that this property is possessed to a slight degree only by the liver and the salivary glands. This will explain why, with deranged function of the liver, levulose will appear in the urine if a certain amount of this sugar be given by mouth.

Nature of Diabetes Insipidus.—Careful study of several patients suffering from insipid diabetes, by Erich Meyer (*Deutsch. Arch. f. klin. Med.*, Vol. 83, Nos. 1 and 2), tend to throw a good deal of light upon the nature of this obscure disease. It was found quite constantly that if patients secreting 10,000 or more c.c. of urine are put on a certain diet the amount of urine will often fall as low as 3,000 c.c. without giving rise to disagreeable symptoms. This diet consists solely of carbohydrates and fats, some fruit, preferably applesauce, being permitted to quench the thirst. If meat or salty food is given during this treatment the amount of urine voided will again increase rapidly. If the total daily quantity of urine be examined before and during treatment it will be found that while the amount varies very much the total quantity of nitrogen and chlorides excreted will remain about the same for the twenty-four hours. It may be stated, therefore, that diabetes insipidus is an affection of the kidneys, which does not enable these organs to void the urine in its normal concentration. To avoid retention of excrementitious matter more water will be necessary, and hence the thirst will be excessive. It is absolutely wrong to deny these patients water, since serious disturbances will follow. The diagnosis of diabetes is occasionally difficult since hysterical polydipsia, non-bacterial pyelitis and other conditions may give rise to the same symptom complex. Much information can here be obtained by changing the diet and by giving salt: if a nitrogenous diet and a dose of 20 grams of salt are followed by a marked increase in the amount of urine with little change in the concentration the case is most likely one of insipid diabetes, while if there is no pronounced variation in the amount, but a higher percentage of salt and nitrogenous matter, another diagnosis must be made. The ability of the kidneys to excrete concentrated urine, if the amount of excrementitious matter in the blood is large, is called the concentrating power; the reverse, the diluting power. In parenchymatous nephritis both the concentrating and the diluting powers are very much diminished; that is, the food and the amount of water ingested change the amount and the concentration of the urine but slightly. In interstitial nephritis the concentrating power is much diminished, but the diluting power almost normal. In hysterical conditions both concentrating and diluting powers are normal, while in insipid diabetes the concentrating power is lost altogether, but the diluting power is normal. A slight increase in concentration may, however, be brought about here by means of therapeutic doses of theocin. Phosphate of soda will not increase the amount of urine either in health or in diabetes insipidus.

Cyanosis of Enteric Origin.—A very peculiar symptom complex was described several years ago under the name "autotoxic, enterogenous cyanosis." The patients exhibit a marked cyanosis of the skin and the visible mucous membranes, the end phalanges of the fingers are enlarged and a severe diarrhea is generally present. Spectroscopic examination of the blood showed a broad band in the red portion of the spectrum, which was generally attributed to methemoglobin. Subsequent reports of similar cases have not been very numerous, but A. A. Hijmans and V. D. Bergh (*Deutsch. Arch. f. klin. Med.*, Vol. 83, Nos. 1 and 2) have been so fortunate to observe a child with atresia ani and urethro-rectal fistula, which presented all the typical symptoms. By careful examination of the blood it could be determined that the cyanosis was not due to methemoglobin, but to sulf-hemoglobin, a compound of hemoglobin and sulphureted hydrogen, absorbed from the intestines.

The amount of gas in the blood was too slight to be detected by chemical means, but the spectrum of the artificial product corresponded in every way with that of the blood. Besides, a large amount of sulphureted hydrogen gas could be obtained from the artificial cultures of the bacteria isolated from the intestines. The gas occurs normally in the intestines of all individuals, but absorption to any degree does not take place unless very large amounts are formed, or unless, like in this case, the intestines are distended, owing to obstruction below.

Prolonged Fever of Unknown Cause.—Every physician will occasionally encounter prolonged febrile conditions which do not permit of a diagnosis, despite the most careful examination of the patient. Some of these cases turn out to be chronic, septic endocarditis; in others, the temperature is due to latent tuberculosis or to pyelitis. The development of malignant tumors, particularly of the stomach and the mediastinum, may give rise to temperature and the tertiary stage of syphilis, especially if gummata are present in the liver, may be the cause of the fever. The case of V. KRAUSE (*Deutsch. Arch. f. klin. Med.*, Vol. 83, Nos. 1 and 2) deserves to be put on record since a diagnosis was impossible even after the autopsy. The chief symptoms were marked chill, profuse perspiration, slight cough and expectoration, developing directly after a severe exertion. The subsequent fever was of intermittent type, but repeated examination of the organs and of the blood and the various excreta failed to reveal the cause. The cachexia gradually increased and after several months the patient died. All the organs were examined microscopically and bacteriologically, but no characteristic lesions or bacterial growth could be obtained. In conclusion, the author draws attention to the value of blood-cultures; in another obscure case on the type of recurrent fever, a pure culture of proteus could be obtained.

Blood-Cultures in Gonorrhea.—In cases of gonorrhea with complications, A. PROCHASKA (*Deutsch. Arch. f. klin. Med.*, Vol. 83, Nos. 1 and 2) recommends that blood-cultures be made since he has found them quite often positive; 10 c.c. or more of blood are removed from a vein at the bend of the elbow and added to 200 c.c. of a mixture of ascitic fluid and broth in the proportion of 1 to 3. In several days an iridescent membrane will form on the surface of the culture medium, made up of characteristic gonococci. It is a mistake to believe that cases with positive findings will always be fatal, since as many as four out of six cases observed by the author recovered. The complications which led to an inundation of the blood with germs were: Suppurating inguinal nodes with erythema nodosum, polyarthritis with endocarditis, and lastly, purulent meningitis.

Curschmann's Spirals in Bronchial Asthma.—Although Leyden was the first to demonstrate in 1872 the presence of special spiral bodies in the secretions of bronchial asthmatics, it was not until Curschmann, in 1883, defined their diagnostic value that the real nature of these new formations became more or less clearly established. According to him, a bronchial secretion that contains spirals is a clear indication of an impending asthmatic attack. PREDTECHENSKY (*Prak. Vrach*, March 19, 1905) reports the case of a patient who had been a sufferer from asthma for the last fifteen years. She expectorated daily two tablespoonfuls of a viscid mucus that contained Curschmann's spirals, a number of Charcot-Leyden's crystals and a great quantity of eosinophile bodies. By a method of his own the author succeeded in staining and isolating the spiral bodies from the patient's secretion and arrives at the conclusion that they are simply accumulations of mucus or mucopus extended to a great length and turned upon a longitudinal axis; the various forms of these spirals simply depend on the length of the filaments and the degree of revolutions around the axis. The principal constituents of these bodies are the eosinophile-leucocytes, the mucus forming mainly the connective element. The spirals, however, are not specific for bronchial asthma, but the special bronchial secretion out of which these spirals are formed during an attack of asthma, as it consists of mucus and an enormous number of eosinophiles which later give rise to the Charcot-Leyden crystals. The attack of asthma is evidently a secretory neurosis due to disturbance of the function of the sympathetic nerve. With this there is also a motor neurosis—a tonic spasm of the bronchial muscular fibers, as evidenced by the peculiar dyspnea of an expiratory type.

Cirrhosis of the Liver.—In speaking on the etiology of this subject, R. SAUNDBY (*Practitioner*, June, 1905) states that many cirrhotic livers are met with from many sources of origin. The chief and nearly invariable cause of the condition is the excessive use of alcoholic drinks. It has been suggested by some writers that the true cause is not the alcohol, but some other substances present in association with it. Lancereaux, for example, has pretended that it is due to the potassium sulphate resulting from the plastering of wine, but the disease follows the abuse of such different kinds of alcoholic drinks, *e.g.*, gin, rum, whisky, liqueurs, wine and beer, which, having alcohol in common, vary otherwise so much in the material from which they are manufactured and the processes they undergo that the ordinarily received opinion seems to be the most reasonable. This view by no means pretends to explain the pathological process, or shuts out the possible agency of microbes, or their toxins, especially the *Bacillus coli communis*, as suggested by Adami and others. The effect of the alcohol may be to depress the vitality of the liver cells and thereby favor the invasion of that organ by the intestinal bacteria. Adami has shown that dead specimens of the *Bacillus coli communis* may be found in any section of normal liver, but in the cirrhosed liver of man and cattle these organisms are not only present in numbers, but full of vitality. It is also possible that the abuse of pepper and spice by Europeans in tropical climates aids the effects of alcohol on the liver, for Tinozzi has shown that the addition of pepper or capsicum to the food of dogs and rabbits causes, after a certain time, a distinct increase of the hepatic connective tissue. It was formerly usual to attribute the "liver," which the old-fashioned Anglo-African brought home with him, to the abuse of curries and pilans, and it is possible that we are not quite right in looking so exclusively to alcohol and malaria as the causes of tropical liver, although the above-named dishes are not so generally used in India as they were a hundred or even fifty years ago. The author considers that the symptoms of alcoholic poisoning show themselves many years earlier in the nervous system than in the functions of the liver. He does not consider that alcohol is late in attacking the liver, but the point is that cirrhosis of the liver does not cause any marked clinical symptoms in its earlier stages, and passes for years unperceived. In fact, men in apparently good health have been known to die suddenly from some other

cause, or have been seized with a first but fatal hematemesis, and on post mortem the liver has been found to be in a state of extreme contracted cirrhosis.

SURGERY.

The Choice of Methods for the Radical Cure of Prostatic Enlargements.—The complete removal of the prostate has been attended with remarkable success as well in patients of advanced age and enfeebled by long suffering, as in men between the ages of fifty and sixty years, whose general health has not been much impaired by their local diseases, so that to-day it is merely a question of which method offers the best results and the lowest mortality. John C. Pardoe (*Med. Mag.*, June, 1905) reviews the different methods of treatment and considers the advantages and disadvantages of each. The author is inclined to the belief that the suprapubic route gives the best practical results. The salient points about this operation are: (1) The speed with which it can be accomplished; (2) the incision into the bladder can be made of a size to suit the delivery of any sized prostate; (3) the fact that the compressor urethra is not damaged if the operation is properly performed; (4) the ease with which coexisting calculi can be removed; (5) the completeness of relief given to the obstruction, and, so far as we know at present, the permanence of this relief; (6) the complete absence of sequelæ, such as stricture and incontinence. The objections to this operation are: (1) Difficulty in the control of hemorrhage; (2) the enucleation is done entirely by the sense of touch; (3) the destruction of the common ejaculatory ducts; (4) drainage, often of a very septic cavity, has to take place against gravity and through two wounds; (5) it is necessary for patient to remain in bed at least a fortnight to three weeks. The operation by the perineal routes are of two types, the deliberate dissections and the rapid enucleations. The advantages claimed for perineal operations are that everything is done under the guidance of the eye, all hemorrhage is stopped as it arises, the bladder cavity is not opened and dependent drainage is secured. The disadvantages are: (1) It is long and tedious; (2) complete enucleation is not always performed; (3) recto-urethral and recto-vesical fistulæ are too common; (4) dense strictures are liable to result; (5) permanent incontinence is a frequent sequelæ: (6) on account of the narrow space it is often extremely difficult to remove large prostates. In the treatment of hard, contracted prostates, which cannot be enucleated entire, the author considers that in median perineal prostatectomy we have an excellent method of effecting a cure.

The Separation of the Urine of Each Kidney.—The desire for more accurate knowledge of the condition and secreting power of each kidney has in recent years stimulated the efforts of surgeons in the perfection of the technic of genito-urinary surgery, particularly cystoscopy, urinary segregation, and ureteral catheterization. H. W. T. Walker (*Practitioner*, June, 1905) presents the subject very thoroughly. In renal disease there are two problems confronting the surgeon, (1) which kidney is diseased? and having decided this, (2) what is the functional power of the healthy or less diseased kidney? The first question is readily decided by the physical signs in most cases, yet the source of hematuria or pyuria requires the separation of the urine secreted by each kidney. The question as to whether the second kidney is sufficiently healthy to undertake the entire renal function, or, indeed, does a second kidney exist, must be decided. In the settlement of this question there are two methods at our disposal: Separation of the bladder into two halves by a septum and draining each half, and catheterization of the ureters. The methods at present in use for collecting the urine of each kidney separately are two. In one the bladder is artifically divided into two compartments and the urine drained separately from each kidney. The instruments which represent the most perfect mechanism are those of Luys and Cathelin. The second method is by means of a catheter cystoscope, by which the urine from each kidney is collected directly from the ureters without the intervention of the bladder. The instruments of Nitze, Casper and Albarran are the ones giving the best satisfaction. The following types of cases are given by the author as suitable for the use of these instruments: (1) Cases in which an operation is proposed on one diseased kidney, and information is desired in regard to the function of the second kidney; (2) cases in which hematuria or pyuria of known renal origin is present, but it is uncertain which is the diseased side.

The Causes of Appendicitis.—In considering the causes of appendicitis, F. C. Bottomley (*Practitioner*, June, 1905) treats of the etiology under three heads: (1) The variety of micro-organisms found in the disease; (2) why this part of the bowel is more liable to inflammation than other parts, and (3) the individual predisposing conditions. Under the first class the organism most frequently found to be present is the *Bacillus coli communis*. The streptococcus is a frequent cause. The following organisms have also, though less often, been found: The *Staphylococcus pyogenes aureus* and *Staphylococcus citreus*, pneumococcus, the *Bacillus pyocyaneus*, *proteus* and various anerobic and putrefactive bacilli, as have also the bacilli of influenza, diphtheria, glanders and tetanus. Actinomycosis is a rare cause. Tuberculous and typhoid ulcers may occur in the appendix. The conditions which make the appendix more liable to attack by micro-organisms than the rest of the bowel are: (1) Its great amount of lymphoid tissue; (2) the bacterial activity is at its maximum in the cecum; (3) its previous diseased condition; (4) gross lesions which are contributing causes, as concretions, ulcers, narrowing of the lumen at one point, true foreign bodies; (5) the appendix may be kinked, bent at an angle or twisted around its long axis, it may have a very short mesentery. Under the individual predisposing conditions may be mentioned: (1) Constipation; (2) the use of purgatives; (3) indigestion; (4) bad teeth, and (5) the uric acid diathesis.

Surgical Importance of the Cervical Rib.—While the supernumerary ribs of the lumbar vertebræ have only an academic interest, those of the cervical region, as Carl Beck (*Journal A. M. A.*, June 17) points out, have a real practical importance. The observations of disturbances due to a cervical rib are multiplying every year. The anomaly may vary from a slight growth just extending beyond the transverse process to a complete rib with a cartilage uniting with that of the first rib. It is bilateral in two-thirds of the cases, but a complete rib on both sides is a rarity. When not complete, or nearly so, it may give rise to no special symptoms, and before the use of the Roentgen ray it was comparatively seldom diagnosed during life, and most of the reported cases were, therefore, accidentally discovered at autopsy. Even when it caused trouble, the symptoms were often credited to tumor or other causes than cervical rib. It is probably, therefore, a more common anomaly than might

appear from the small number of cases reported. Though of congenital origin, it does not cause trouble until about the twentieth year, a fact that is hard to explain. The principal symptoms of the anomaly are a hump-like prominence in the lateral cervical region, a superficial pulsation of the subclavian artery and the appearance of pressure symptoms in the brachial plexus. The trouble is a mechanical one, and the treatment, when required, must be surgical. It is just as foolish, Beck remarks, to remove a cervical rib which causes no disturbance as it is to leave one that does cause disturbance until lasting tissue changes have been brought about. At times the technic is very simple, but in the majority of cases difficulties are met, and it should be done only by an experienced surgeon. The difficulty is enhanced by the necessity of removing the periosteum, as otherwise recurrence may be expected. Beck finds that a triangular flap incision, running directly downward along the trapezius and then conducted toward the sternum about one inch above the clavicle, fully exposes the field of operation. If the trapezius cannot be sufficiently retracted with a broad retractor, a transverse incision must be made into the muscle, for, next to a strict asepsis, the success of the operation depends on extensive exposure of its field. The brachial plexus, which usually runs across the rib, can be pushed aside: the subclavian artery is best pulled forward. The scaleni are done by using a Cooper shears and, advancing layer by layer, lifting the several muscle fibers with the flat of the scissors and using the instrument like a grooved director. By means of a ring-shaped periosteotome the rib is then freed of any small muscular appendages. The division is easy with Beck's beak-shaped rib shears, but some may prefer the Gigli saw. Any remains are nipped off with rongeur forceps.

On Echinococcus Cyst in the Thyroid.—This is one of the rarest tumors associated with this gland, and only 22 cases are thus far known. A case of particular interest on account of its retrosternal position in the anterior mediastinum and the difficulties attending its removal, is reported by O. EHRHARDT (*Berl. klin. Woch.*, April 17, 1905). The patient was a man aged twenty-one years, who reported that about three years previously he began to notice a growth which gradually appeared and grew up from behind the sternum. This was followed by severe dyspnea, difficulty in swallowing the cardiac palpitation. An operation was necessary for the relief of symptoms and was done under Schleich anesthesia. The tumor was quite large and involved a number of neck muscles. It was found necessary to exacuate it and then the true nature of the growth was revealed. Extirpation was completed with difficulty, the trachea being involved and some of the cartilagenous rings partially destroyed. As soon as the removal of the tumor was accomplished, relief from symptoms was immediate. The wound was sutured and the man made a good recovery. Some two years later, no recurrence had taken place.

Gastric Disturbances in Appendicitis.—It is to the credit of E. PEYR (*Münch. med. Woch.*, April 25, 1905) to have shown that many of the gastric disturbances seen with appendicitis are caused by embolic processes resulting from thrombi in the vessels of the mesentery or the omentum. If an emulsion of oil or paraffin be injected into the mesenteric veins of animals, it is almost always possible to bring about the formation of characteristic ulcers in the mucous membrane of the stomach with hemorrhage. In man the source of the thrombi is either the omentum or the appendix, with its mesenteriolum and the thrombi are caused by the infection itself or by the handling of the abdominal contents during the operation. Ulceration may also occur in the duodenum or other parts of the intestinal tract, though this is certainly very rare. Embolic processes are somewhat more common in the lungs and the portal system.

PHYSIOLOGY.

The Toxicity of the Urinary Alkalodis.—It has been shown by H. GUILLEMARD and P. VRAUCEANO (*Comptes Rendus*, May 8, 1905), that silicotungstic acid may serve to separate from the urine a number of bodies which show most of the reactions for alkaloids. The authors sought to discover the proportion which the alkaloidal toxicity bears to the total toxicity of the urine. They find that it is 18 to 25 per cent. Kreatinine has no influence on the alkaloidal toxicity, which does not vary in the same sense as the total toxicity, and is not proportional to the quantity of alkaloids, but depends on the nature of these substances.

The Production of Alcohol and Acetone by the Muscles.—An explanation of a possible source of some of the acetone that may accumulate in the blood in pathological conditions, is afforded by the research of F. MAIGNAN (*Comptes Rendus*, April 17, 1905), who finds that a muscle removed from an animal and placed under conditions favorable for survival, produces both acetone and alcohol. The former constantly increases, but the latter increases only for the first few days, and then diminishes. The tissues are able to destroy alcohol after it is formed, but have no influence over the molecule of acetone. The alcohol is probably transformed into acetic acid by a direct or an indirect oxidation. The acetic acid then undergoes the fate of all other organic acids in the body, namely, a transformation by odixation, into carbon dioxide and water. The transformation of glucose into alcohol may be considered a mode by which the body is able to destroy glucose.

A New Method of Testing for Formalin in Milk.—The altogether too common use of formalin by milk-dealers gives importance to the communication of E. NICOLAS (*Comptes Rendus*, April 17, 1905) on a new method of discovering this toxic substance in milk. This test consists in the precipitation of the casein by means of acetic acid (up to 10 per cent.), filtration, and then adding to the filtrate some crystals of amidol, or amidophenol. In the presence of minute quantities of formalin (1-50,000) there occurs a canary-yellow coloration.

The Biligenic Function of the Spleen.—It has for a long time been thought that some intimate relationship exists between the spleen and the liver. An investigation of this problem was made by MM. CHARRIN and MOUSSU (*Comptes Rendus*, April 17, 1905). In animals subjected to cholecystotomy with the formation of a biliary fistula, it was found that a subsequent splenectomy caused a change in the quality of the bile. This gradually suffered a loss in color, and a diminution in its specific elements. The conclusion is drawn that the spleen, by virtue of its hemolytic function, provided the coloring matter, salts, and other substances which enter into composition of the bile by the liver.

Glycemia due to Ablation of the Mammary Glands.—The removal of the mammary glands in an animal about to give birth to young causes, according to M. PORCHER (*Comptes Rendus*, May 8, 1905), the appearance of a large quantity of sugar in the blood with a resulting glycosuria. This is easily explained by the fact that the sugar which ordinarily would go to the mammary glands, to be converted into lactose, is thrown back upon the blood, and finally secreted by the urine.

The Reduction of Oxyhemoglobin.—A new method that may be of value in clinical diagnosis, and which

consists in a measurement of the time taken to reduce the oxyhemoglobin in a specimen of blood, has been discovered by R. Lépine and Boulied (*Comptes Rendus*, April 10, 1905). Jabonley reported in 1904 a case of surgical shock following a prolonged anesthesia, in which the time for the reduction of hemoglobin removed from the patient was delayed. With this as a hint the authors sought to determine whether this delay occurs in any other conditions. Samples of blood in which the amount of hemoglobin was carefully determined were then subjected to the reducing action of certain agents, and the time that it took before the absorption-bands for oxyhemoglobin to disappear was noted. The reduction-time of the oxyhemoglobin of the blood of a normal dog is generally between eighteen and twenty minutes. Dilution of the blood has no effect on the reduction-time. In anemia the reduction-time is greatly increased. The prolonged inhalation of ether or chloroform has the same effect. Microbic infection, even with a very virulent staphylococcus, with a strong febrile reaction, has no effect on the reduction-time. In normal venous blood this time is usually three minutes less than that of arterial blood.

Action of Intestinal Juice upon the Secretory Activity of the Small Intestine.—By injecting intestinal juice into the blood of an animal it was found by A. Frouin (*Comptes Rendus*, April 17, 1905), that the amount of intestinal juice secreted was markedly increased. It was also found that the substance in the intestinal juice which stimulates this increased production is not a ferment, since it is not precipitated by diluted alcohol and is not destroyed by heat. Hence it cannot be secretin.

Philocatalase and Anticatalase in Animal Tissues.—The discovery of anti-ferments and anti-anti-ferments in the blood has been established on sound experimental foundations. T. Baggelli and Mlle. L. Stern (*Comptes Rendus*, May 1, 1905) have given the name anticatalase to a ferment capable of destroying catalase in the presence of oxygen. Anticatalase is found in the spleen, liver, and lung. Moreover, in several tissues as well as in the blood there is a ferment which has the power of destroying anticatalase, thus protecting catalase. To this ferment the authors give the name philocatalase, and they find it present in the organs in which the anticatalase is also present, and in the same proportion as the latter.

Variations of Osmotic Pressure in the Contracting Muscle.—Attempts have been made to explain the muscular contraction on the basis of surface tension. S. Leduc (*Comptes Rendus*, May 1, 1905) finds that the contracting muscle causes an elevation in the osmotic pressure in the muscle. This increases with the increased strength and duration of the contractions, and with the increase in work performed by the muscle. These changes cannot fail to have a profound, if not a unique, influence on fatigue.

The Favorable Effect of X-rays in Non-Suppurative Tuberculous Adenopathies.—A report of three cases, showing the favorable effects of the X-rays in swollen glands of the neck was made by J. Bergonié (*Comptes Rendus*, March 27, 1905). The cases presented a chain of swollen indurated glands fixed to the deeper tissues, which had resisted all other forms of treatment. A number of exposures to the X-rays caused a disintegration of and diminution in size of the glands, which, however, did not entirely disappear. That the improvement was really due to the X-rays was shown by the fact that some of the glands which were shielded from the rays remained unchanged. Further experiments are promised by the author.

Treatment of Cerebrospinal Meningitis with Pilocarpine.—A large number of cases of cerebrospinal meningitis have been treated successfully with pilocarpine by V. Voryzek (*Wien. klin. therap. Woch.*, May 21, 1905), after all other remedies had been tried and the condition seemed hopeless. The drug was always given by mouth in daily doses of 5 to 7 centigrams for adults and 2 to 5 centigrams for children. It was always borne well, since bad after-effects are only common after hypodermic injections. The action of the drug is probably the same as in pneumonia; a leucocytosis is set up, which enables the body to successfully combat the invading germs.

OBSTETRICS AND GYNECOLOGY.

The Metritis of Virgins.—It has been a subject for dispute among gynecologists whether the virgin uterus is ever subject to a true metritis. P. Dalché (*Arch. de Therap.*, April 15, 1905) takes an affirmative view and states the following as causes of metritis in the unmarried. First of all is gonorrhea, which is frequently contracted innocently by young girls. Other causes are poor hygiene during the early menstrual life, a narrow introitus vaginæ, causing retention of menstrual fluid and congenital maldevelopment of the uterus. The symptoms of vaginal metritis are dismenorrhea, menorrhagia, pains in the hypogastrium, and leucorrhea. The treatment is the following: The application of a number of leeches to the hypogastrium, in order to reduce the pelvic congestion, the wearing night and day of hot fomentations over the hypogastrium, the administration of mild laxatives (it may be mentioned that a number of cases of false metritis are the result of pelvic congestion due to constipation, and the use of sedative sitz-baths containing leaves of nightshade, belladonna, hyoscyamus, each 30 grains; also add to the water two crushed poppy-heads. In addition to this the patient should get vaginal injections. For this purpose, use injections of the following:

R Eucalyptus leaves 10
Aquæ 1000

Filter and add one soupspoonful of bicarbonate of soda.

The Effects of Sexual Incontinence During Gestation. There are a number of grounds for the belief that sexual intercourse should be avoided by the pregnant woman. Ch. Féré (*Arch. de Neurologie*, April, 1905) believes that, besides the greater liability to abortion which may result from this practice, injurious consequences to the unborn infant may result. He cites the case of a young child exhibiting many of the traits of degeneration, the offspring of healthy parents, with a history of excessive intercourse during the pregnancy of the mother. He believes that this practice harmed the fetus during its early intra-uterine life. The author believes that during early pregnancy, owing to the release from the fear of additional offspring, the amount of sexual intercourse indulged in may be excessive. This was the case in the instance cited. The possible injurious effects on the future of the offspring should decide in favor of the rule that during gestation coitus should be interdicted entirely.

Technic of Ventrosuspension.—The object of the operation of ventrosuspension is to secure the uterus to the anterior abdominal parietes forward in an exaggerated normal position, so that subsequently a ligament is formed or pulled out to maintain the uterus in its normal position. Such a ligament must not involve a wide area of uterine parenchyma, and should be of such a character as to undergo hypertrophy and hyper-

plasia during the growth of a pregnant uterus. In view of the occasional failure of the Keely operation, H. D. Beyea (*Am. Jour. Obstet.*, April, 1905) suggests a modification which has proved successful in over four hundred cases. The silk suspension sutures are passed from without through rectus muscle, one-quarter of an inch from the margin, through peritoneum and uterine tissue and out through peritoneum and muscle on the opposite side. Two such sutures are introduced, one-quarter of an inch apart, and tied with just sufficient tension to bring the uterus firmly in contact with the peritoneum without cutting through muscle tissue. The ligamentary support formed through this operation is always single and is believed to contain muscle fibres from both uterus and rectus, an advantage in its hypertrophy during gestation and in its contractile power during the puerperium.

Results of Ventral Suspension of the Uterus.—G. R. Holden (*Am. Jour. Obstet.*, April, 1905) has made a study of the postoperation history of 445 cases in which the operation of ventral suspension had been performed at the Johns Hopkins Hospital, which led to the following conclusions: (1) Successful symptomatic results after suspension of the uterus may be expected in about 60 per cent. of those cases in which the retroposition is the sole or most prominent abnormal condition. (2) Fifty per cent. to 60 per cent. of all cases of dysmenorrhea in which retroposition is the most prominent abnormal condition, are relieved of the dysmenorrhea by suspension of the uterus. (3) The suspension ligament is usually a band or one or two cords, 3 to 5 cm. long. (4) The majority of patients who have had the operation performed have no adverse symptoms referable to the suspension during pregnancy or labor. The most frequent adverse symptom is abdominal pain during pregnancy. (5) Recurrence does not necessarily follow after labor, but may occur. If labor does not intervene the number of recurrences is not more than five per cent.

Varicose Veins of the Broad Ligament.—The presence of varicose veins in the broad ligament constitutes a condition worthy of recognition as a clinical and pathological entity. Most gynecologists pass them over with the assumption that they are secondary and will disappear with the correction of the causative lesion. They may be overlooked because they do not manifest themselves when the patient is prone or in the Trendelenburg position. The veins of the broad ligament lie in two groups under the ovary and low down in the ligament near the internal os. The anatomical peculiarities that predispose the spermatic veins to varicocele in the male are alike present in case of the ovarian veins. The monthly engorgement of the uterus and the vascular distention demanded by the pregnant uterus are etiologic factors not found in the male. After a study of those cases in which there is no complicating conditions to which the symptoms might be attributed, S. M. Miller and A. B. Kanavel (*Am. Jour. Obstet.*, April, 1905) consider the subjective symptoms of varicose veins in the broad ligament to be a disturbance of menstruation, which is apt to be prolonged, profuse and frequent and a sense of fulness, weight and tension in the pelvis, increased on standing and relieved on assuming a reclining position. In secondary cases the symptoms are inseparable from those of the causative conditions. The physical examination should be made with the patient standing and the broad ligament palpated through the rectum and the vagina. The varicose veins are felt as a baggy mass, a subinvoluted uterus is usually present, hemorrhoids, varicosities of the vulva and a bluish tint to the mucous membrane of the vagina may be noted. The disease is clinically curable, the treatment consisting in ligation and excision or section of the veins, with such treatment of the ovaries, tubes and uterus as may be indicated.

PRESCRIPTION HINTS.

Treatment of Erysipelas.—W. F. Waugh (*Med. Standard*, June, 1905) recommends in the treatment of erysipelas the use of pilocarpine in sthenic cases, and iron in asthenic cases. During a period of twenty-five years he has had good results with this line of treatment, and no deaths. No local treatment is recommended. In sthenic cases the pilocarpine is given every hour until sweating occurs. When this takes place the edges of the involved area begin to recede. This remedy is then suspended for a day, and if the eruption continues the treatment is resumed until it is evident that the remedy has perfect control of the disease. In asthenic cases the tincture of the chloride of iron, thirty drops every four hours, and nourishment crowded, when improvement sets in at once.

Lotion for the Treatment of Eczema.—

R Potassii chloratis.....1 gr. 50
Vini opii.....2 gr. 50
Aq. dist.....1,000 gr.

M. Dissolve. Saturate compresses with this solution and apply them upon the parts affected by the eczema. If the inflammation is very acute, begin the treatment by a warm bath of the affected parts and the use of poultices made of powdered carbonate of lime.—*Journal de Medecine de Paris.*

Antihemorrhoidal Ointment (West).—

R Extract of henbane.....
Tannin..... aa 5 gr.
Petrolatum.....90 gr.

—*Journal de Medecine de Paris.*

Treatment of Corns (Brocq).—Soften the corn at night by covering it with a piece of flannel coated with soap and some spirits of wine. Afterward scrape it with a curette or a knife. Apply on eight successive days a layer of the following collodion:

R Alcoholic extract of cannabis indica...0. gr. 5
Salicylic acid.. .....
Alcohol (90%)..... aa 1 gr.
Ether .....2 gr. 50
Flexible collodion.....5 gr.

M. F. s. a.

On the eighth day, after bathing the foot for a long time in hot water, scrape away with a curette or knife the mass of collodion, and along with it the greater part or all of the corn. If necessary, the treatment may be repeated.

A common and often efficient remedy is to place upon the corn a round piece of lemon during one or several succeeding nights.

Cantharideal collodion, or salicylic ointment is also used. Different caustics should be used with extreme caution. Surround the very painful corns with a special ring of wool or a corn plaster. When the corn is situated between the toes, keep the latter separated with a pad of fine cloth, and dust the corn with a powder of tannin, alum or oxide of zinc. Certain authors recommend the following method: (1) Moisten the corn with a concentrated solution of salicylic acid in alcohol; (2) cover with powdered salicylic acid and make a sealed covering with a small piece of cotton wadding; (3) renew the dressing in four or five days, and if there is any inflammation, stop the treatment. About the eighth day remove the corn by soaking.

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THE HYPERTROPHIC REACTION.

It requires scarcely more than a superficial survey of recent investigations in the domain of pathology, to note that the laws underlying morbid processes are no different from those that govern biological phenomena in general. The discovery made by Virchow over fifty years ago, that the normal body cell is the anatomical unit of all pathological formations, may now be supplemented by the revelation of equal importance, namely, that the mechanisms of both physiological and pathological processes are identical.

One of the most comprehensive of all biological principles is that of adaptation. Upon this conception has been erected the grand superstructure of organic evolution. The experimental investigation of the ways in which various organisms react to changes in its environment has already yielded substantial results.

While de Vries and his followers will continue to till this fertile field of research among the lower forms of animal life, the pathologist and clinician, as well as the physiologist, will no less be able to note the applications of this basic principle in the highest of all organisms.

It is hardly necessary to allude to all of the numerous examples of adaptation in the normal body. Without dwelling on the various forms of compensatory hypertrophy, which have been recognized for a long time, one may recall one of the recent brilliant researches on the digestive ferments. Thus it has been shown that the pancreas is capable of adapting itself to a change in diet by changing the character of its secretion. To be more explicit, if dogs be fed on milk-sugar, their pancreatic juice will soon be found to contain lactase, although this ferment is under other circumstances not found in this secretion.

About a year ago, in an article entitled "The Biological Interpretation of Cancer," in the Medical News, Dr. A. Spingarn placed malignant neoplasms in the same category with the various forms of physiological hypertrophy. To quote this article, "the explanation of these forms of hypertrophy may be sought in the fact that when the cells of a tissue are incapable, as the result of some irritation, be it chemical, parasitic, or mechanical, of doing the work allotted to them, then these cells will proliferate in order to produce other cells, the activity of which will make up for the embarrassed function." According to this view, the secret of all forms of hyperplasia, both physiological and pathological, is to be found in some form of interference with normal activity.

Among the various forms of tissue overgrowth, there is none of such universal occurrence, appearing in almost every individual who has passed middle life, none which is nearly as much responsible for chronic disease, and none which has so stoutly resisted all therapeutic efforts, as the connective-tissue hyperplasias. If the cause of these could be clearly revealed, then the mystery of Bright's disease, emphysema, myocarditis, etc., will have been solved.

In the light of what has already been suggested as to the adaptive reactions of the organism, one may attribute the connective-tissue hyperplasias to some form of antecedent irritation. This view is certainly in harmony with the results of clinical observation. Thus, among the etiological factors of Bright's disease, are to be mentioned alcohol, lead poisoning and gout, which are also responsible for other diseases due to connective-tissue proliferation. That these diseases are fundamentally of toxic origin has suggested important possibilities from the viewpoint of preventive medicine. Indeed, Metchnikoff has gone so far as to attribute the sclerotic changes of senility to toxins absorbed from the alimentary canal.

At the recent meeting of the Association of

American Physicians at Washington were read two important papers bearing directly upon this subject. One of these was by Dr. A. O. J. Kelly, of Philadelphia, and dealt with the pathology of cirrhosis of the liver. This author pointed out that while it is the custom to think of the overgrowth of connective-tissue as the cause of the fibrosis, the study of the parenchyma has been neglected. In the course of the destructive process, there is an overgrowth of liver-cells. The beginning of cirrhosis is attributed to some cell poison which produces necrosis of liver-cells at a time when the liver is capable of making up for its loss by hyperplastic reaction. The essential feature in cirrhosis of the liver, instead of being atrophy, as is commonly thought, is really, in the majority of cases, a hypertrophy, even in the advanced stages of the disease.

Dr. Richard M. Pearce, of Albany, N. Y., was the author of the other paper, which dealt with the experimental aspect of this subject. It was Kretz who first advanced the theory that cirrhosis of the liver is the expression of the conservative process of repair by which nature seeks to mend the damage inflicted upon the liver parenchyma. Pearce experimented on dogs, with the view of producing necrotic changes in the liver. For this purpose he injected hemolytic immune sera of high hemagglutinative power. These produced thrombi composed of fused red blood-corpuscles. The resisting obstruction of the circulation produced necrotic foci in the liver. The process of repair following these lesions was minutely studied. There first occurs a mitosis of the liver cells lying at a slight distance from the necrotic areas, occurring thirty-eight hours after injection. At the end of forty-eight hours there is a proliferation of endothelial and connective-tissue cells, which increases so rapidly that in five days the necrotic tissue is almost entirely replaced by young granulation tissues. The only difference between this artificial cirrhosis and that seen in man, is that the cirrhotic process does not occur at the periphery of the lobule as in man, but near its center. This slight topographical difference, however, does not affect the important biological significance of these experiments.

These researches afford another illustration of the latent reparative energies of the body, of which the closing in and final obliteration of a tuberculous cavity in the lung is a familiar example. While in most instances this new connective-tissue formation is a purely conservative process, in some instances it may overstep the strict limits of repair, and may become, in itself, a pathological menace.

The hypertrophic reaction must, therefore, be regarded as identical with the capacity of regeneration normally possessed by all living tissues. Two types of regeneration may be distinguished, namely, the normal and the abnormal. In the former the process of repair proceeds at a rate and to a limit just sufficient to restore the part or function that has been lost or damaged. In the latter, the persistence of some irritant causes an extravagant prolongation of the regenerative forces. As an example of the normal type, the formation of ordinary scar-tissue may be cited, while the formation of exuberant granulations and of keloid serves as an example of the abnormal type of regeneration. It is to the latter that the various pathological hyperplasias belong.

This entire subject has little to offer from the viewpoint of active therapeutics, but from that of preventive medicine it is pregnant with possibilities. The rôle of various irritants and other destructive agents in the production of the various hypertrophies and hyperplasias has been clearly indicated. A truth which the physician is best fitted to circulate abroad is, that the "simple life" has a physical as well as a spiritual connotation.

THE PHYSIOLOGY AND THERAPEUTICS OF THE MEDULLARY SUBSTANCE OF THE SUPRARENALS.

Anatomically two distinct portions of the suprarenals have been recognized—the cortex and medulla. The latter has been termed the paraganglionic portion, since in certain particulars it resembles in structure the sympathetic ganglia, from which, indeed, it has been derived. The utter disparity between the cortex and the medulla both histologically and genetically suggests that these portions have distinct functions in the animal economy. The unique place which the adrenals have won in modern therapeutics has been achieved in spite of a disregard of these two diverse portions of the organ, since the suprarenal extracts that are being so largely used are obtained from the entire organ.

It has remained for certain Italian investigators to probe into the physiology of the medullary portion and to discover its peculiar therapeutic virtues. In February, 1903, Professor G. Vassale and Dr. A. Zanfrognini reported to the Medico-Chirurgical Society of Modena the effects of ablation of the medullary substance of the adrenals. This is followed in cats by acute symptoms and death, from which the authors concluded that the medulla, which is the more important part of the chromaffin tissue, has the function of secreting, like the rest of this tissue, a substance which is necessary to the economy. It preserves the cardiovascular tone, acting directly upon the smooth-muscle fibers, exciting their contraction and maintaining their tone. It also bears some relation to the bodily metabolism, acting like a ferment in regulating the biochemical exchanges and preventing auto-intoxication.

In June of the same year, Vassale reported that the ingestion of an extract of the medullary portion of the adrenals has an action which is five times as energetic as that of the adrenalin of commerce. He found that it had a particularly favorable effect upon the muscle of the gastro-intestinal canal. It caused a surprising improvement both in the local and general condition of individuals suffering from atonic gastrectasia and peristaltic atony, associated with neurasthenic symptoms; these were cases of several years' duration. This observer also found that the active principle of the adrenals is not affected in vitro by the gastric juice, and when administered by the mouth it passes into the blood vessels of the stomach unaltered, preserving its characteristic action. He therefore considered that this method of administration is rational and is indicated in the various forms of gastric and intestinal atony, in the different neuroses, and in spinal and mental diseases in which are found as marked symptoms, cardiovascular and atonic gastro-intestinal troubles with marked general asthenia. This investigator proposed to replace the names adrenalin and suprarenin with the term "paragangline," which designates more precisely the secretion of the medullary portion of the suprarenals.

Vassale was not the only one to observe the peculiar medicinal virtues of this portion of the adrenals. U. Baccarini and A. Plessi reported their results in the treatment of fourteen cases of gastric atony by means of daily doses of from forty to sixty drops of the medullary extract, in divided doses four to eight times a day. The effect of the drug does not last long, hence the necessity of frequent dosage. The results were rapid and brilliant and persisted after the cessation of the treatment. The gastric symptoms were relieved through an augmented mobility of the stomach. As accessory effects, the authors observed an increase in the pulse-rate and of the cardiovascular pressure, an augmentation in the amount of urine, of ureic nitrogen and of phosphoric acid excreted, which indicates an acceleration of the oxidative processes of the organism.

Another clinician, G. Guiciardi, reports similar results (*Rivista Sperim. di Freniatria*, Fasc. 1, 1903). He employed the paragangline (Vassale) in various neuropathic conditions with or without gastro-intestinal symptoms, and in cases of scrofulous glandular enlargements. The action upon the stomach and intestine was always prompt and efficacious. In general asthenia there is always an increase in the amount of energy put forth and in the sense of well-being. The metabolism is notably increased in cases of senile epilepsy with arteriosclerosis and in old and torpid glandular enlargements. No intolerance to the drug was observed.

The above unanimous verdict as to the usefulness of paragangline in conditions which are not very uncommon, arouses the hope that clinicians in this country will give this drug a trial, and that manufacturers will soon place this at our disposal.

TO FILTER CROTON WATER.

Dr. Darlington, the Commissioner of Health, recently made a report to the Mayor in which he strongly expresses his conviction that filtration is necessary in order to protect the people of New York against the invasion of disease germs. The reasons set forth include the arguments which have long been familiar to the student of public hygiene, although some of them have, in this instance, been drawn out to a somewhat unusual tenuity: the impurities of the water are increasing, and are likely to increase still more in the future; there is an increasing difficulty in the way of properly protecting the water-sheds against pollution; the authority and laws governing the means by which the sanitary condition of the supply can be protected are imperfect; the death rates from typhoid fever and diarrheal diseases are unnecessarily high; filtration is an economical process when its cost is compared with the value

of the lives saved. It is usually possible in such arguments to point to a high typhoid fever death rate as a reason for filtration, but in New York this is fortunately impossible: New York has one of the lowest death rates from typhoid of any of the large cities of America, and a considerable part of it is believed to be due to the consumption of polluted shellfish.

The cost of a plant for filtering the Croton water has been estimated at $17,000,000; the cost of operating it, including repairs and depreciation, at a sum which, if capitalized, would be $900,000. It is said that the work would be completed in two years.

The report of Dr. Darlington, dated July 25, 1905, is not the first move in the project for a filtration plant for the Croton. This project was started by the Commission of an Additional Water Supply, who recommended that "work be immediately begun for the filtration of the Croton supply." It is understood that the Aqueduct Commission would have undertaken to carry out this recommendation, but were blocked by the fact that the Corporation Counsel expressed the opinion that the Commission did not have the necessary legal power to do so. The New York Water Board apparently has no more power in this respect than the Aqueduct Commission, and although it undoubtedly would be in favor of the plan, it cannot be expected to carry it out at present unless the Board of Aldermen move on the Health Commissioners' report or a recommendation is made by the Mayor.

Meanwhile there need be no alarm. Opinions cannot differ as to the ultimate need of filtration plants to purify the Croton, but analyses and statistics show that the water is not unwholesome now. If the Central Park reservoirs were kept properly cleaned and the works and drainage areas maintained in a proper manner there would be no fault to find with the supply at present. The filtration of the Croton is a large project. In view of the uphill work usually necessary before purification works would be built in any city, the agitation for a filtration plant in New York has been begun none too soon.

Typhoid Fever at Bay Ridge.—Bitter complaint is made by the residents of Bay Ridge, following the spread of typhoid fever to that section, the neighborhood of Fort Hamilton and South Brooklyn, because they have recently been deprived of water from the artesian wells at Utrecht and Gravesend. This perfectly pure water supply, they say, has been diverted to Coney Island and they have been furnished instead with water from the Ridgewood Reservoir.

ECHOES AND NEWS.

NEW YORK.

Epidemic Cerebrospinal Meningitis.—The situation in New York is weekly improving, only 24 new cases for the week ending August 5, 1905, having been reported. The number of cases of typhoid fever is slowly rising at this time, 122 cases having been reported during the same week.

Phthisiophobia in Middletown.—Vigorous opposition has developed to the establishing of a sanitarium for tuberculosis patients on the top of Shawangunk Mountain, at Otisville, by the Board of Health of New York City. The opposition is led by the Erie Railroad and its army of commuters living near New York City. E. H. Barto, suburban passenger agent of the Erie, was in Middletown last week and has been working hard to get the Orange County Board of Supervisors to rescind its action granting permission for the sanitarium. Both the county and town authorities have been given permission and New York City has commenced laying out the grounds.

Washington Heights Hospital Appeal.—This hospital, a new charitable institution at One Hundred and Seventy-fourth Street and Broadway, was opened to the public on August 1. The hospital is in immediate need of an ambulance service to cover the large area in which the population of Washington Heights is contained, and the authorities take the liberty to solicit voluntary subscriptions to provide an ambulance outfit as quickly as possible. Washington Heights is already one of the most populous sections of the city, and in five years will have over half a million people above One Hundred and Forty-fifth Street. The only hospital in the vicinity at present is at One Hundred and Thirty-first Street and Amsterdam Avenue, two miles from the center of the new heights district.

New York State Tuberculosis Hospital.—The retirement of Dr. Pryor from the superintendency of the New York State Hospital for the Treatment of Incipient Pulmonary Tuberculosis at Ray Brook, continues to excite interest and comment throughout the State. Those who are familiar with the facts, writes *Charities*, believe that the troubles at Ray Brook have been aggravated by the failures to provide a business head for that institution in the form of a competent steward. This failure imposed upon the medical superintendent of the institution work which should never have been placed upon him, and the result was, under those circumstances, a foregone conclusion. It is well known, says *Charities*, that for some reasons of his own that have not yet been fully developed, the fiscal supervisor of State Charities has been seeking to get rid of the stewards at some of the institutions, with the result of throwing a large amount of extra work on the superintendents. This experiment was tried at the House of Refuge for Women at Hudson, with bad results, and, finally, after the superintendent had been obliged to take a lengthy vacation to recover from the extra strain upon her, a steward was again employed. Through the influence of the fiscal supervisor, the board of managers of the Ray Brook hospital were obliged to do without a steward and to satisfy themselves as best they could with the services of a "bookkeeper, storekeeper and purchasing clerk."

The Loeb Memorial Home.—Plans have been completed for the Solomon and Betty Loeb Con-

valescent Home, to be established by the children of those in whose memory it is named at East View, Westchester County. The site is the former Harris farm, an estate of more than seventy acres, situated on an elevation, with a commanding view. In addition to the land, the sum of $750,000 has been given for the institution, of which $500,000 has been set aside as a permanent income-producing fund, while the remainder is to be used at the discretion of the trustees for the erection and equipment of the home. As stated in the *Evening Post* last April, the purpose of the foundation is to provide an opportunity for the enjoyment of wholesome surroundings in the country to recent sufferers from acute diseases, so that they may sufficiently recover their strength and health before again entering their vocations. Besides actual convalescents, it is intended to receive persons who are in poor physical condition from anemia or similar troubles; but no attempt is to be made to cure either acute or chronic diseases. A mansion now on the site of the home is to be removed entirely, as it did not prove to be adaptable for the purposes of the institution, and the new administration building is to take its place, situated between beautiful groves of old pines and other fine trees on the crest of the hill. Distributed about this, at distances of from 200 to 300 feet, will be three cottages, one for men, one for women, and one for children. These cottages will be as homelike as possible, and every effort will be made to exclude the impression of a hospital. The main or administration building is to have large foyers and extensive porches. On the main floor will be a music room, large and small dining rooms, and pantries, while in the basement will be a smoking and billiard room, servants' dining rooms, the kitchen, and provision rooms. The second story will contain the apartments of the superintendent and the matron, an emergency hospital, storerooms, toilet rooms, etc., and a number of rooms for the reception of about ten convalescents before they are assigned to the detached cottages. In the cottage for children will be two separated dormitories for twelve persons each, with large dining rooms, playrooms, a reading room, and a sun parlor on the ground floor. Each of the two other cottages is to contain thirteen bedrooms for one or not more than two occupants each, with one living room, joint toilet, and bathrooms, and an apartment for the nurse. Large porches will be a feature of these structures. All the buildings on the grounds will be two and a half stories in height, and will have brick walls covered with plaster work, except that the outside of the children's cottage will be half in timber work. The architecture of the cottages is to be of old English style. A central plant will provide for the hot-water heating and supply all the buildings.

Yellow Fever in the Past in New York.—While residents of Manhattan Island during the last half-century, writes the *Evening Post*, have enjoyed almost complete immunity from yellow fever, only sixty-eight deaths having occurred since 1852, according to statistics on file in the Board of Health, the period previous thereto saw several epidemics which in many cases changed the entire complexion of sections of the city by the inhabitants leaving the infected districts and going to others. As early as 1706, in the days of Lord Cornbury, New York was visited by the fever, which was brought from St. Thomas. Every one who could fled either to New Jersey or Long Island, Lord Cornbury with his retinue, taking up his residence in Jamaica. It appeared slightly up to 1747, but in 1791, it again visited the city, and was confined to a limited region about Burling Slip. Early in the summer of 1795, in the midst of political commotions, a British frigate entered New York Harbor with several cases of yellow fever on board. The disease spread rapidly through the city, and continued to rage till the coming on of the cold weather. A large portion of the inhabitants fled from the city and nearly all forms of business experienced a complete stagnation. The whole number of deaths by the fever amounted to about seven hundred and fifty, or about 1½ per cent. of the whole population. In 1798 the epidemic returned again, and although it did not appear till near the beginning of August, it greatly exceeded in fatality that which had preceded it. More than two thousand persons died of it, or one-tenth of the population. An investigation into the cause of this epidemic made by "a large and respectable committee of the citizens, the physicians, and of the corporation," presented only the ordinary causes of disease in large cities. Among these they enumerated "deep, damp cellars, public slips containing filth and stagnant water, burials in the city, narrow and filthy streets, tippling houses (more than a thousand were licensed that year), and want of a supply of pure and wholesome water." It appeared again yearly in modified degree until 1805, when it raged with considerable violence, producing great panic and flight from the city and seriously deranging business. Mrs. Lamb, in her "History of New York," describes the epidemic of 1798 in the following words: "Many were seized with it before they had heard of its presence. Nearly one-half of the cases reported in the month of August proved fatal. The horror of the situation was greatly increased by the alarm of the country people, who ceased bringing their country produce to market. The relief committee appealed through the newspapers for supplies of poultry and small meats, an appeal which met with a bounteous response. Business was suspended, and schools and churches closed. Washington Square, purchased for a burial place by the corporation in 1796, became a potter's field indeed, and not only strangers and common people, but many persons of note were buried within its limits." The visitation of the fever in 1803 stopped the work for a time on the building of the City Hall, and Mayor Livingston is said to have remained at his post, regarding himself bound, as by a sacred contract, to face the terrible enemy and alleviate suffering. Livingston was stricken with the disease, but recovered. Twelve years later New York was again the seat of this dreadful scourge. Hemstreet's "Story of Manhattan," describing it thus: "In the year 1815, after the battle of New Orleans, everything was going along smoothly when all at once the yellow fever broke out on the West Side, far down town. It raged with even more violence than had the smallpox. Citizens fled, and the stricken district was fenced off, so that no one might enter it. It was like a place of the dead, silent and deserted. Many people went far out of town to Greenwich Village, and many business houses opened offices in this little settlement, with the result that Greenwich Village started on a new life, and it was not long before it grew to be an important part of New York, instead of a suburb. For many who had transferred their business, also went to live there, not returning to the city even

after the fever had passed away." In July, 1819, the fever reappeared. A few fatal cases occurred in the neighborhood of Old Slip, but did not extend farther. But in 1822 it broke out suddenly in Rector Street, and soon extended through the vicinity and up to Broadway. The epidemical character of the disease was marked, and exceedingly malignant, and the contagion unusually active and violent. By the middle of August the epidemical atmosphere overspread all that part of the city that lies below the park, and the entire population of the infected district fled before it. The Custom House, banks, and other offices were closed and abandoned, or removed to temporary quarters in Greenwich Village. High board fences shut off each infected street or district below City Hall. Ferry boats landed their passengers far uptown. The markets were removed to Chatham Square and Hudson Street, near St. John's Park. Multitudes fled the city, and many dwellings were hastily constructed in the upper wards, especially at Greenwich Village. The disease lingered until autumn. The fever did not reappear until the year 1852, from which time up to last year the following deaths have occurred: 1852, 1; 1853, 5; 1854, 6; 1855, 2; 1856, 13; 1858, 5; 1895, 4; 1860, 2; 1864, 2; 1867, 3; 1868, 1; 1869, 1; 1870, 3; 1871, 2; 1873, 3; 1876, 1; 1877, 1; 1879, 2; 1880, 1; 1884, 3; 1885, 1; 1886, 1; 1888, 3, including the death from yellow fever of the Astronomer Proctor, who died in the Clarendon Hotel; 1892, 1; 1898, 1 (Colonel Waring was the only victim this year).

PHILADELPHIA.

Starvation as a Means of Escaping the Penalty of Murder.—In order to defeat the purpose of James Salerno, who set out to starve himself to escape the penalty which will fall to his lot for the murder of his stepdaughter, Sheriff Riddell, of Williamsport, subjected the convict to violent exercise, which induced him to take the food he had refused for five days.

Wound of the Heart Sutured.—While attempting to do voluntary police duty Alonzo J. Currington received a wound of the heart which almost proved fatal. The knife used by the patient's adversary punctured the left ventricle. After receiving the stab Currington walked 50 yards, caught the wagon which he protected and asked the driver to take him to the hospital to have the wound attended to. Dr. John Gibbon, of 332 South Fifteenth Street, Philadelphia, reached Bryn Mawr Hospital soon after the occurrence of the accident and placed five sutures in the heart muscle. Lying in the same ward is a boy who punctured the pericardium and tore the heart muscle slightly by falling upon a pitchfork. His wound was also sutured; both patients are getting well.

The Results as Revealed by the Investigation of the Schuylkill River.—Two years ago when the Reading sewage filter plants were examined by the State the bed was constructed with sand which is now substituted by grit, which permits the sewage to pass through rapidly but retains little or none of the solid substances. Each filter bed is cleaned once every twenty-four hours and the contents are dumped upon a large pile about 100 feet from the river so that with each heavy rain much of the filter materials are washed into the river. Along the banks of the river between Reading and Phœnixville the stream was found polluted by washings of stables and outhouses. French Creek, which is near Phœnixville, receives the discharges of slaughter houses and the water of the old canal into which the discharges of the gas works are thrown. Many of the street sewers in Norristown empty directly into the river and in Conshohocken all the surface water reaches the river. Farther down the stream the closets of the railway station and of the small villages drain into the river. The same pollution occurs at Manayunk. The canal of the last-named place is a source of great pollution on account of the class of people who inhabit its banks; they pay little respect to the laws of sanitation.

CHICAGO.

City Department of Health Adopts System of Food Inspection.—The city health department is sending inspectors to all market districts of the city, and kerosene is poured upon the condemned food to prevent its sale. The inspectors attacked the Ghetto, and 8,000 pounds of fish, 70 crates of bananas, 185 crates of pears, 620 crates of peaches, and 15 tainted calves were condemned in one day. Milk dealers will also be visited by the new "flying squadrons."

Music Treatment Aid to Insane at Dunning.—"Better than barrels of medicine and much more effective than straps or straight-jackets." In these words Dr. B. H. Podstata, general superintendent of the asylum for the insane at Dunning, summed up his opinion recently, after observing for two hours the effect of music upon an audience composed of insane men and women patients. The concert given for the inmates of the Dunning asylum was more pretentious than any previous entertainment there. Four hundred of the 1,800 patients under Dr. Podstata's charge were assembled in the big hall of the institution and there sat more attentive than many an audience of persons supposed to be possessed of their full mental faculties. Many of the listeners were patients from violent wards, who were constantly under the watchful eyes of their keepers, but none of them gave any cause for anxiety. From the moment of the first number on the program until the conclusion, the audience sat in rapt attention and vociferously applauded each selection. Patients who in their wards are continuously restless, muttering and gesticulating, sat quiet and subdued. One patient, known to be violent, made no more serious demonstration than to rise and move his lips at each outburst of applause. A few of the dull faces did not respond to the charm of the music, but these were rare, and the features of most of the listeners plainly displayed interest and admiration.

Demand for Clean Bill of Health.—In connection with the recent outbreak of yellow fever in New Orleans and elsewhere, Dr. James A. Egan, Secretary of the Illinois State Board of Health, has issued the following notice to railroads: To the General Managers of Railways Entering the State of Illinois: The Illinois State Board of Health hereby orders that until further notice no passengers from New Orleans or other points in which yellow fever has appeared or may appear in the future, shall be permitted to leave trains at any point in the State of Illinois south of the line of the Baltimore and Ohio Southwestern Railway, running from East St. Louis on the west to Vincennes, Ind., on the east. Certificates of health from officials in the infected districts of the south will not be ac-

cepted for the transportation of passengers into that section of the State of Illinois lying south of the line above described until ten days after said passengers have left the infected districts. No passengers from Louisiana, Florida, Alabama, or any other States in which yellow fever has occurred or may occur in the future shall be carried to any point in Illinois south of the line of the Baltimore and Ohio Southwestern Railway, unless provided with certificates of health, signed by national, State or municipal health officers. Inspectors of the Illinois State Board of Health will board all trains passing through the district south of the line of the Baltimore and Ohio Southwestern Railway. Passengers coming from points north of the above-described line will be required to show that they have not been in infected municipalities for ten days prior.

GENERAL.

Congress of Radiology and Ionization.—The first International Congress of Radiology and Ionization will take place at Liège, Belgium, September 12 to 14, inclusive. The Congress will be made up of two sections, one devoted to physical problems, the other to biological ones.

Car Sanitation in Minnesota.—At the last meeting of the Minnesota Board of Health the executive officer was instructed to draw up certain rules and regulations regarding car sanitation, these to be considered in conference with various railway officials and reported upon at the next regular meeting of the board. In carrying out its inquiry, four points are emphasized by the Minnesota board: (1) A sufficient amount of fresh air properly distributed; (2) cleanliness of the car and its contents, including closets; (3) the proper heating of the car; (4) overcrowding. All of these points relate to railway coaches, street cars and sleeping cars. Opinions have been asked by the board as to whether they are given all of the consideration they deserve by the companies operating in Minnesota, and the question is asked whether the board shall undertake to secure better sanitary conditions by formulating certain regulations. Circular letters have been sent out to a number of citizens in Minnesota and the character of the replies will influence the board in its decision.

Thomas Jefferson on Yellow Fever.—A correspondent to the New York *Sun* writes, in part, as follows: A strange coincidence is noted by those familiar with yellow fever epidemics of New Orleans, which have occurred at stated intervals, viz., 1853, 1867, 1878 and 1905, that invariably they have broken out in the same section of the "Old French Town" that caused the immortal Jefferson when President, in December, 1804, to write as follows to Gov. Claiborne: "The position of New Orleans certainly destines it to be the greatest city the world has ever seen. There is no spot on the globe to which the produce of so great an extent of fertile country must necessarily come. It is three times greater than that on the eastern side of the Alleghanies, which is to be divided among all the seaport towns of the Atlantic States. In the middle and northern parts of Europe, where the sun rarely shines, they may safely build cities in solid blocks without generating disease; but under the cloudless skies of America, where there is so constant an accumulation of heat, men cannot be piled on one another with impunity. Accordingly, we find this disease (yellow fever) confined to the solid built parts of our towns, and the parts on the waterside, where there is most matter for putrefaction, but rarely extending into the thinly built parts of the towns, and never into the country. In these latter places *it cannot be communicated. In order to catch it you must go into the local atmosphere where it prevails.* Is not this, then, a strong indication that we ought not to contend with the laws of nature, but should decide at once that all our cities shall be thin built?" After these introductory observations, Jefferson expressed the opinion that in building cities in the United States the people should take the checkerboard for their plan, leaving the white squares open and unbuilt forever and planted with trees. He observed to Claiborne: "As it is probable that New Orleans must soon be enlarged, I enclose you this same plan for consideration. I have great confidence that however the yellow fever may prevail in the old part of the town, it would not be communicated in that part which should be built on this plan, because this would be like the thin built parts of our towns, *where experience has taught us that a person may carry it after catching it in its local region, but can never communicate it out of that.* Having very sincerely at heart that the prosperity of New Orleans should be unchecked, and great faith, founded I think on experience, in the effect of this mode of building against a disorder which is such a scourge to our close built cities, I could not deny myself the communication of the plan, leaving it to you to bring into real existence if those more interested should think as favorably of it as I do. For beauty, pleasure and convenience it would certainly be eminent."

Canal Zone Death Rate Low.—There is a strong feeling in the War Department and the Marine Hospital Service, writes the New York *Sun*, that the public has an exaggerated idea of the unhealthful conditions on the Isthmus of Panama. The death rate, considering the tropical climate, is regarded as low, even under present conditions; the death rate among canal employees is remarkably low for any climate, and it is pointed out that the great work of sanitation inaugurated by the United States Government authorities is only in its early stages. "What is the record? During the entire year 1905 the death rate, in spite of reports to the contrary, has been kept to a remarkably low percentage. The authorities have the great problem of sanitation well in hand, and it is just as certain that they will make the Canal Zone healthy as it is that American pluck and energy will build the canal." A comparison between the conditions which obtained during the first year of canal work under French administration and present conditions shows that the United States officials are solving the question of sanitation. In 1881 the French reported an average force of 928 men on the Isthmus, with a death rate of 66.8 per thousand, while in the Ancon hospital alone the deaths from yellow fever reached the proportion of 23.7 per thousand. The death rate in the Canal Zone among both the 10,000 employees and the uncounted non-employees during the last three months was only 2.6 per thousand, counting the fatalities among both classes and omitting from the equation a number of non-employees. This would make an annual mortality of less than 10 per thousand. The death rate in Washington is 20 per thousand or more. There were but 26 deaths from fever in the Canal Zone during May, June and July, and of this number only 15 were employees, an annual rate of 6 per thousand only. The number of cases of fever, most of which recovered, decreased from 72 in June to 28 in July, due presumably to the scientific efforts of the sanitary officers in screening, cleaning, draining

and taking such other extraordinary precautions as were taken in Cuba in 1898 and 1899. The authorities here say it should be kept in mind that since De Lesseps' time science has solved the problem of checking yellow fever. The United States, therefore, has overcome what seemed to be to the French an unsurmountable obstacle. The marked decrease in the number of cases in what may be considered one of the worst months of the year is also due in part to the new water supply for the city of Panama, that was first turned into the mains on July 4. With half pressure on a six-inch main twelve streams of water were thrown higher than the Administration Building, and this pure water is now turned in on several mains through the center of the city. Faucets have been attached to the hydrants and the people are now provided with free water. The advantages of this improvement can only be appreciated, the War Department officers say, by those who are acquainted with conditions that formerly obtained, and can scarcely be overestimated. Another important change that is expected to add to the health of the Isthmus is now well under way and that is the establishment of comfortable quarters along the entire line of the canal. By the end of the present month every non-immune employee can be comfortably lodged outside of Panama and Colon, which appear to be the only two foci of the diminishing fever on the Isthmus. Plans are also under consideration looking to the establishment of a refrigerating system, so that meat, vegetables, eggs, butter, poultry and other food stuffs can be brought from cold storage in the United States, transported in cold storage by vessels to the Isthmus, and then distributed by refrigerating cars to the ice-boxes of the hotels and boarding houses along the line of the canal. With the installation of this service the personnel of the canal will be properly housed, will have pure water, will be well fed, and the question of proper sanitation will, it is believed, be solved. The most efficient scientists and engineers have told the War Department that they are thoroughly convinced that eventually the Isthmus will be a pleasant and agreeable place of abode. They say that the fever is not indigenous to the Isthmus. The nights are cool, and, with the exception of a period in the middle of the day, the heat is not oppressive.

The Alaska Trip of the American Medical Association.—The meeting of the American Medical Association, which has just been held in Portland, has had an element of success that was due wholly to the hospitality of the Portland physicians and their wives. The formal discussions of medical matters which appear in print are of but faint interest compared with the intimate personal exchange of opinions concerning practice, ethics and ways and means of men living under conditions as varying as those in New York and Duluth, or New Orleans and Seattle. Given an equal number of delegates to any European congress, one would find a bar to intimacy in language, religion and nationality. But at this meeting on the western coast the physicians who met in Portland were typically American, men who had merged the foreign birth and breeding of ancestry in the universal citizenship, and who dropped the language of science for the language of friendly intercourse, and without barriers of reserve showed themselves as they were, the genial, sympathetic family physician, the scientific student, the agitator for educational advancement, and the specialist of every branch. Never has there been such a protracted opportunity for the physicians of our land to compare notes. Under the guiding eye of the energetic committee of Portland, who saw to the gathering of the clans, the physicians found themselves congregated in parties and brought in special trains through the Yosemite, or the Yellowstone, or the Canadian Rockies, with facilities for returning in parties by another route when they had been able to determine their choice, based on the enthusiastic reports of those whom they met at the convention. The whole trend of the entertainment was for the better acquaintance of men who had met but yesterday, and for the reunion of old friends. To this end there were receptions at the homes of the physicians, and in the large buildings at the Fair Grounds. There was a day spent on the Columbia River, with salmon fisheries and great snow-capped peaks for diversion, and a beautiful salmon banquet served by the ladies in a grove of pines far up the river. There was a reception and a supper and much diversion at The Oaks, the new pleasure resort of Portland. In fact, no moment outside of business hours was left unfilled with entertainment. But the crowning event of the trip was the expedition to Alaska, which was planned with every detail of care for comfort and for extensive sight-seeing. The enthusiasm for this trip was so high that by the time the meeting was over another boat could have been filled had numbers signified their desire in time. As it was, the early applicants were fortunate, and almost one hundred and fifty, physicians, wives, sons and daughters, went to Seattle, where the local physicians had rushed home in time to lunch and dine them and show them their city before the party sailed in the steamship Jefferson.

Puget Sound, at the sunset, with its snow-capped Olympic Range, and the great white peak of Mt. Baker, is a sight long to be remembered, and clear weather at the start enabled the party to have this view as a climax to the first day's panorama. Nor did the weather fail at the critical moments, for when the party reached Lynn Canal and the great White Pass the skies were clear and the weather warm, and continued so through the rest of the trip. In fact, the balmy weather and the sunny, flowery aspect of Alaska was as much of a surprise to those who had accepted their impressions from school books as was the wonderful railroad over the White Pass to those who had so recently read of the rush to the Klondike over the trail across the mountain. The gold fever almost tempted some of the party to push on three hundred miles farther to Dawson, but the memory of lucrative practices at home sobered their judgment; yet, when they left Sitka it was with a feeling of sore need for a lining of gold dust in their empty pockets. Sitka, the once seat of the Russian government in Alaska, the historic town with its ancient, fire-shaded boulevard by the island-gemmed sea, with its library and Russian church, its old samovars and furs and quaintly wrought silver; Sitka, with its row of Indian girls sitting with their finely-woven baskets under the shade of the pine trees, proved too much for the prudence of the company, and after paying their respects to the Governor and his wife, they bought generously, enthusiastically, frantically, mocassins and baskets and totem poles.

Through the courtesy of the officers the famous Treadwell mines were thrown open to the party, and they stood at the rim of the great Glory Hole, where miners that looked like ants crawled around and blasted quartz, then carried it up the steep rocks, where it was crushed and washed and the rich pay dirt collected for final smelting.

But the most wonderful experience of all was on

afternoon spent in a sea of icebergs, where the shining Foster Glacier was pushing its tall white ice-cliffs into the sea. The Jefferson slowly made its way between the great blue floating grottoes and towers, then put off life-boats with the party, who were cautiously rowed between the ice-floes to the pebbly beach at the foot of the Taku Glacier. There the stout and slim alike were carried ashore on the sailors' backs. And after a walk of a mile or more over the rubble of the terminal moraine they climbed the glassy slope of this retreating glacier that now melts and deposits its burden of stones before it reaches the sea. To share adventures with those with whom heretofore one has merely shared scientific opinions is to establish a friendship between men of widely different residence that would otherwise take years to form.

OBITUARY.

Dr. M. S. Graham, of Rochester, died in that city last week, aged fifty years. He was chief surgeon at the Hahnemann Hospital there and conducted a sanitarium. He had been President of the County Medical Society, and was a member of a number of other medical societies and a prominent Mason.

Dr. Robert Maitland Petrie died suddenly at his home, Jersey City, last week, from heart disease. Dr. Petrie was born at Liberty, N. Y., in 1850. He was a son of the Rev. Dr. Petrie, who in 1856 became the first pastor of the first Presbyterian Church erected in Jersey City. Dr. Petrie was educated at Princeton and afterward studied medicine at the University of Pennsylvania. He was a member of the State Pathological Society, and was regarded as an authority on heart disease.

SOCIETY PROCEEDINGS.

AMERICAN SURGICAL ASSOCIATION.

Twenty-sixth Annual Meeting, held at San Francisco, Cal., July 5, 6 and 7, 1905.

The President, Geo. Ben Johnston, M.D., of Richmond, Va., in the Chair.

After a brief executive session, Dr. Emmet Rixford, of San Francisco, First Vice-President, took the chair, and President Johnston delivered his address.

John Peter Mettauer.—He selected for his subject "John Peter Mettauer," saying that little was known of his childhood and youth beyond the fact that, raised in an atmosphere of surgery, he imbibed a love for this profession and early determined to adopt it as his life's work. He was born in 1787. Mettauer's medical education was carried on under the most favorable conditions obtainable in America at that time. For a period of about forty years the number of surgical patients who gathered to Mettauer for treatment was sufficient to keep him constantly with from 45 to 60 cases under his care. Often it was true that about every good house in the community sheltered some person who was convalescing or awaiting his turn for operation. The speaker had heard his operations for cataract put in number far beyond the 800 that could be accounted for. Dudley's great record in cutting for stone 225 times in a practice of forty years must yield to Mettauer's total of 400 operations, and the number of strictures relieved was commonly put at something over 200. Three operations were recalled, performed in the last week of his life, when at the age of eighty-eight years his eyes were yet keen enough and his hands steady enough for him to make a successful operation for cataract, for stone, and for amputation of the breast. But Mettauer's most brilliant work in the way of operations was his method with vesicovaginal fistula, and his successful employment of wire sutures made of lead, in which he antedated by a good many years even Sims, whose name was generally associated with this operation. So successful was Mettauer that he declared his belief that every case of this sort was curable by his method, and so far as his efforts were reported, the speaker was not aware that he ever failed in one. Proper pride and regard for his own reputation in the coming years must make every surgeon careful to a degree in assigning credit for useful and honorable achievements to those who had preceded him, and there was in the history of surgery no claim more clear and unmistakable than that of John Peter Mettauer to the honor of discovery in this case, and he was plainly entitled to rank in medical history and in the grateful memory of his successors in the same class with McDowell and Dudley and Sims and Mott. Mettauer's first reference to the operation of vesicovaginal fistula appeared in the *Boston Medical and Surgical Journal*, Vol. XXII, p. 154, twelve years before Sims' communication, and it clearly outlined the operation which ought always to be associated with his name. Mettauer was decidedly of the opinion that every case of vesicovaginal fistula could be cured, and his success justified the statement. Reference was made to the eccentricities of Mettauer, and among them was his invariable custom to wear on all occasions and at all times a preposterously tall hat. One of his children, now surviving, had told the speaker that she never saw her father without his hat on. He never attended service in the churches, and the explanation was always assumed to lie in the unwillingness either to remove the covering from his head or to attend church wearing his hat. He would decline to take off his hat in court on the occasions when his expert testimony was sought, and the sole occasion on which a Judge seems to have insisted that the doctor should be uncovered brought from Mettauer the suggestion that if his evidence was essential to the cause he would be pleased to give it with his hat on, and that if it were not so he would be quite as well pleased to leave the court-room, meanwhile, of course, wearing his hat. Dr. Johnston said that so great was his interest in seeing full justice done to the genius of Mettauer that he was seriously contemplating some extended work in the way of a biography.

End Results in Surgery of the Kidney.—Dr. Albert Vander Veer, of Albany, N. Y., read a paper on this subject, which was based on a review of ninety cases occurring in his own practice. The first largest group was composed of movable or floating kidney. These numbered twenty-three cases, exclusive of those where excision of the capsule for neuralgia, examination for stone, and decapsulation for Bright's disease was done. Nineteen of these cases occurred in the female, about two-thirds of whom were married, the lesion being on the right side. There were four males, the lesion also occurring on the right side, and the entire number recovering. One required removal of the kidney four years after for abscess of the pelvis and stone; good recovery.

He next presented a series of twenty-four cases of nephrotomies, in which there was a surgical lesion of the kidney, grouped under the heading of pyelitis, pyonephrosis, pyonephritis, or ascending pyelonephrosis. The series was divided as follows: Male, right side, two recovered, one died; male, left side, six recovered. Nine of these cases finally required nephrectomy, one

of the latter resulting in death. Of the remaining fifteen cases all made good recoveries, but one of them, after a period of four years, had a slight sinus, not deep, no pus, patient in excellent condition; the other patient recovered from the kidney complication, but developed a pelvic abscess, which was still draining, and she was gradually losing ground. In the cases of nephrectomies for hydronephrosis there were eight, as follows: Male, right side, two recovered; female, right side, three recovered; female, left side, two recovered, one died. Regarding the removal of the kidney by the transperitoneal incision, the author stated that it was an exceedingly easy and convenient way of removing a large cyst or tumor, the patients doing nicely afterwards. Of these there were four cases.

He then cited two cases of hydronephrosis in young women who were entirely cured by simple aspiration. Of nephrotomies, followed later by nephrectomies, there were nine cases, as follows: Male, right side, two recovered; male, left side, one recovered; female, right side, three recovered; female, left side, three recovered. All of these cases made a good recovery from the two operations, with the exception of two patients, one dying a few months after from multiple abscesses of remaining kidney, and the other, still alive, was gradually failing in strength.

The author was greatly impressed with the study of tuberculosis of the kidney, as to whether the invasion occurred from below or from systemic infection. There were seven of these cases, as follows: Male, right side, one recovered; male, left side, two recovered; female, right side, one recovered; female, left side, three recovered. There was a total of eight cases of malignant growths in connection with the kidney, as follows: Sarcoma.—Male, right side, two recovered, one died; male, left side, one died; female, right side, one recovered; female, left side, one died. Carcinoma.—Female, right side, one recovered, but died later from return of the disease. Hypernephroma — Male, left side, one recovered. Of decapsulation of the kidney for nephritis, there were two cases that recovered; results excellent. Of traumatisms and injuries of the kidney, there were six cases. Of cases of renal neuralgia, associated with suspected stone of the kidney, the author was not able to confirm his diagnosis by exposure of the organ. The entire group was made up of six patients, and in only one instance was the diagnosis confirmed by needling of the kidney.

The author then reported some irregular cases, and concluded his paper by reporting two cases of abdominal surgery which illustrated errors in diagnosis, in which the real trouble was with the kidney.

In a review of the cases presented in this paper, one was impressed with the very excellent results following the operation of fixation of the kidney. In the hands of all operators the mortality list was exceedingly small. Wearing of a bandage, with kidney pad, was exceedingly irksome to many patients who gladly consented to surgical intervention, when the prospects for recovery were so good.

The combined operation of nephrotomy and nephrectomy later for abscess of the kidney was appropriate for such cases as would not bear too long an operation, and where there might be a large kidney, made up of multiple abscesses in such a way as to make manipulation of the organ quite difficult. Simple drainage benefited the patient for a time, often causing a diminution of the mass to be removed later. In the purely cystic form of kidney, a true pyonephrosis, an immediate nephrectomy was proper in the majority of cases. Following a nephrotomy or nephrostomy a fair number of cases recovered without further intervention. In a large pus kidney there was always some danger in a nephrectomy causing an infective peritonitis. In traumatisms of the kidney firmness and decision on the part of the surgeon were an absolute necessity. There were no other form of emergency surgery more exacting. In cases of movable or floating kidney, giving such marked symptoms that the surgeon was often led to believe that he had a stone to deal with, the speaker admitted that our diagnoses were very far from correct, and the cases here reported were disappointing by reason of not finding a calculus present. It was sometimes difficult to diagnose between a neuralgic kidney and one containing a calculus in its pelvis. Splitting of the capsule relieved pain in cases that could only be classified as a neuralgic condition. It was yet a mooted question as to how much could be accomplished by resection of the kidney for relief of abscesses and growths. The cases of tuberculosis reported manifested decidedly the importance of an early operation, and gave a most encouraging outlook for these patients regarding permanent recovery. Malignant growths made the mortality list, and yet there was much hope for these cases if reached early. Surgery of the kidney was becoming more and more exact with the splendid advance made in methods of examination of the urine, etc. Errors of diagnosis would occur less frequently in the practice of abdominal surgeons as methods of examination became more perfect.

The writer was impressed with the oblique incision, which had been employed in nearly all of his cases during the past ten years. The one case of hernia reported resulted from the old incision, parallel with the spine and transversely through the muscle, causing a lumbar hernia, but none of the others presented this complication. It will be observed that in a total of about 90 patients there were 123 operations done. This was readily accounted for because of the patients requiring more than one operation. The rate of mortality was exceedingly small, malignant disease and abscesses of the kidney being alone responsible.

Dr. William J. Mayo, of Rochester, Minn., asked the essayist whether he took out the ureter or considered it necessary to remove it in cases of tuberculosis of the kidney. Also, whether any of the cases in which nephrotomy for tuberculosis of the kidney was performed had been followed by permanently good results. Recently he had gone over the histories of some 36 nephrectomies for tuberculosis of the kidney, and had found that a large number of people who were supposed to have tuberculosis of both kidneys in the early stage had only one kidney involved. Careful examination had shown in the majority of these cases, according to his recent experience, that the tuberculosis was confined to one kidney. He thought a large majority of cases of tuberculosis of the kidney were one-sided to start with; that his experience, as furnished largely from post-mortem examinatons, was that the second kidney became involved at the time of death, and that therefore he had post mortem rather than living evidence of the fact that in the early stages the percentage of cases in which tuberculosis of the kidney was bilateral was small.

Dr. Archibald MacLaren, of Minnesota, mentioned the ease with which a kidney could be removed after resection of the twelfth rib. He got this idea from Dr. Mayo. He had tried this in a recent case and found he could do the operation much easier by resecting the twelfth rib, although he opened the pleura. The opening could be plugged with gauze.

Dr. Vander Veer, in closing the discussion, said, in reply to Dr. Mayo, that the tuberculosis was confined to one kidney in his cases, and he had no record of bilateral kidney tuberculosis. In regard to the removal of the ureter, in the first case he operated upon he did not remove the ureter, and in one case he had to do a secondary operation on account of relapse. In regard to Dr. Carson's case, he had seen almost a duplicate of it in that there was a sarcoma which involved the gall-bladder and right lobe of the liver.

Non-Parasitic Cysts of the Spleen.—Dr. Chas. A. Powers, of Denver, Colo., in a paper with this title stated that this subject had a twofold origin. *First*, the few and comparatively recent clinical reports; *second*, the somewhat more numerous accidental post-mortem findings. In September, 1895, a young man of eighteen was referred to him, who presented a large right-sided abdominal cyst. The mass was of four years' growth. There had been a gradual loss of flesh and strength, anorexia, headache and general pressure symptoms. Fluctuation was plain. The diagnosis of a splenic cyst seemed positive. A free incision was made over the prominent part of the tumor, the walls of which were found to be about one-half of an inch thick, semi-cartilaginous and solidly adherent to all the adjacent structures. Extirpation seemed impossible. Later autopsy findings confirmed this. The single cyst held several litres. A posterior incision was made with through drainage. The walls of the cyst did not collapse and the patient died of septic absorption from the cyst wall on the twelfth day. The anatomical diagnosis was hemorrhagic cyst of the spleen. From the autopsy findings the author could not see how the cyst could have been successfully extirpated.

He presented a brief analysis of thirty-two tabulated cases. In considering the treatment, he spoke of puncture, incision and injection, incision and drainage, marsupialization, resection of cyst and splenectomy.

Status Lymphaticus and the Ductless Glands.—Dr. Roswell Park, of Buffalo, N. Y., defined the term status lymphaticus and stated that the reason for bringing the subject before a body of surgeons was because the condition itself had so much to do with the question of toleration of anesthetics, and the matter of repair of wounds, that it really was one of exceeding importance. Not a few cases of sudden death during and after operation were to be explained by the abnormalities constituting this condition. These had usually been attributed to the anesthetic or the anesthetist, and it might be that had the latter appreciated all the dangers offered by the condition he would have guarded his anesthetic, or perhaps abstained from giving it. Nevertheless, the anesthetizer was not always to blame, because he was often called in without previous knowledge of the case, it being really the function of the medical attendant to carefully study it and determine its peculiarities. The relation which the lymphatic system and the lymph-making organs bear to each other and to the ductless glands was as positive as it was obscure. Lymphoid tissue throughout the body seemed to increase as the thymus normally disappeared. In infantile marasmus the thymus had usually completely and prematurely disappeared, its condition being a fair index as to general nutrition. But it was hypertrophy rather than atrophy of the thymus which most interested the surgeon, since those individuals who die suddenly and unexpectedly usually had an enlarged thymus. There certainly existed strange relationships between the pituitary body, the thymus, the thyroid, the coccygeal body, the testes, the ovaries, and perhaps the bone marrow. In this list the quite recent researches relative to the parathyroids should also be included. A clearer recognition of the function of the latter seemed to have changed the whole aspect in which we should regard Graves' disease, it being made quite probable that this condition was due rather to atrophy of the parathyroids than to excess of the thyroid or its secretion. In the ordinary forms of cystic goiter, where thyroid secretion was not augmented, the symptoms of Graves' disease were lacking. It was usually after removal of the thyroid proper that the opposite symptoms of Graves' disease appeared, *i.e.*, myxedema and cachexia, while when the parathyroids were taken away the peculiar symptoms of Graves' disease appeared.

The life history of the thymus was closely related to that of the testes. Atrophy of the former would seem to depend upon complete maturation of the latter. These statements could be corroborated by a study of cryptorchids and castrated animals. The status lymphaticus was also described under the terms lymphatism, lymphatic constitution and status thymicus, the condition having apparently more to do with thymus than with any other isolated organ. Thymus extract produced in animals a fall of blood pressure with acceleration of the heart, and, in fatal doses, collapse. Thymic enlargement might cause death by pressure on important structures, even distinct from the trachea. Thymic asthma, a condition known for some time, was one in which death sometimes occurred most unexpectedly and quickly. In these cases not only was the thymus enlarged, but there was found a general hyperplasia of the lymphatic tissue, with enlargement of the lymph nodes and of the spleen. The relations between status lymphaticus and rickets were frequent and pronounced. Nearly all cases of the former displayed the ordinary clinical evidences of the latter. The participation of the lymphatic system was most casually apparent in the involvement of the faucial, laryngeal and lingual tonsils, *i.e.*, the so-called adenoids of the throat specialists. It was notable that it was in these cases the death most often occurred during or after anesthesia. Thymic asthma was practically the same thing as laryngismus stridulus. The occurrence of this in children ought always to serve as a warning, as well as an indication for careful study and treatment. Should, then, chloroform be given to such a case, inadverently or unnecessarily, the agent would not be nearly as responsible for the death as the practitioner who employed it. The condition was to be recognized by the ordinary evidences of rickets which were usually present, by generalized enlargement of the lymph nodes, the presence of adenoids in the naso-pharynx, a history of laryngismus stridulus or special liability to spasm of the glottis, perceptible enlargement of the thymus or by notable enlargement of the tyroid or spleen. In the young these conditions simulated cretinism. Such a clinical picture as would afford the above features should serve as a warning and make one abstain from the use of anesthetics unless absolutely necessary, while it should also prompt carefully directed treatment. This treatment should consist in careful attention to elimination, as well as to nutrition, while thymus or pituitary extract should be administered internally, as well as the glycero-phosphates or some similar up-building tonic. If, now, it should be necessary to clear out the nasopharynx in such a case, the parts should be first desensitized by cocaine, to which a little adrenalin might be added, even previous to beginning anesthesia. If the patient be known to be subject to glottic spasm, one should be prepared to do a tracheotomy on an instant's notice, and especially so if the thymus be perceptibly enlarged. One might even have to use a long

trachea tube. Operations of convenience should be postponed until the patients can be carefully built up. Operations of necessity may be practised with the above precautions, while in cases of impending or actual emergency one might depend upon artificial respiration after tracheotomy and the use of adrenalin.

Patent Urachus, with a Review of the Cases Reported; Operation on a Case Complicated with Stone in the Kidney.—Dr. Geo. Tully Vaughan, of Washington, D. C., explained the defective development in embryology which leads to the formation of patent urachus and of Meckel's diverticulum. He gave a short review of the literature and stated that the older anatomists held different opinions as to whether the urachus was a tube or a solid cord. He divided cases of patent urachus into the complete, blind, blind internal, and blind external, and into congenital and acquired varieties, and explained the occurrence of some cases of acquired patent urachus by the pressure of urine in the bladder from obstruction to its normal outflow, causing Wut's valve (a small valve which guards the bladder opening of the urachus) to give way and permit urine to enter the urachus, when, if infection took place, abscess formed, and pus broke through the umbilicus or discharged into the bladder. He briefly recounted 52 cases reported in the literature and added one case of his own, of which 38 cases were operated on, with 32 recoveries, 3 deaths, and in 3 the result was not reported. He divided the methods which had been tried for closing the open urachus into 8 classes, as follows: (1) The application of caustic or of the actual cautery to the umbilical opening. (2) The use of the cautery and of ligatures or sutures. (3) The use of ligature or suture only. (4) Plastic operations, the application of a flap of skin to close the opening. (5) To open or slit up the urachus, curet or cauterize, and pack. (6) Removal of sources of irritation from the urachus, such as stones, pus, etc., and keeping the parts clean. (7) Removal of obstruction to the flow of urine from the bladder through the urethra, as a tight prepuce, strictures of the urethra, hypertrophy of the prostate, and tumors or stone in the bladder. (8) Extirpation or dissecting out of the urachus and sewing or ligating the part next to the bladder, after the manner of treating the appendix in appendectomy. The author did not approve of the method of simply closing the umbilical end of the fistula, lest an infected suppurating area be left which might cause septicemia or peritonitis. He considered slitting open and packing the abscess cavity a rational operation, but thought the operation of election was to dissect out the urachus with the entire diseased area. Dr. Vaughan used this method in his case—a man of forty, who had an acquired patent urachus since the age of seventeen. A month after the patent urachus had been cured it was necessary to perform nephrolithotomy on the right kidney, and nine months later the same operation on the left kidney. A brief consideration was given to tumors and cysts of the urachus.

(To be Continued.)

The Yellow Fever Situation.—Up to the present time there is little change in the southern yellow fever situation. The Federal authorites under the Marine Hospital and Public Health Corps have been called in, and are in practical control of the situation. It remains to be seen how well they may be able to apply the methods which are now held to be preventive. About 700 cases of infection have been reported to date with a mortality about 20 per cent.

THE AMERICAN MEDICAL ASSOCIATION.

Fifty-sixth Annual Meeting, held at Portland, Oregon, July 11, 12, 13 and 14, 1905.

(Continued from Page 288.)

SECTION ON OBSTETRICS AND DISEASES OF WOMEN.

(Continued from Page 236.)

THIRD DAY—JULY 13TH.

Some Complications of Pregnancy Treated Surgically.—Dr. F. C. Donoghue, speaking of the complications of pregnancy that require operative interference cited appendicitis, ileus, ovarian tumors and fibroids. He concludes his study with citations of cases as follows: When there is a history of a well-marked attack of appendicitis in a young woman, operation should be performed as an antecedent to marriage. Operation should be advised prior to marriage if tumors of the uterus or appendages are known to be present.

Pulmonary Tuberculosis as an Obstetrical Complication.—Dr. Charles Sumner Bacon, of Chicago, computes from the statistics of Chicago and other cities that there are probably between 24,000 and 31,000 pregnant women in the United States suffering from tuberculosis. Except in very rare cases tuberculosis is not a cause of sterility, therefore an ethical as well as a physical question is raised in connection with marriage or the desire for children in a woman suffering from tuberculosis. The effect of pregnancy on the woman is bad. Such effect is more apt to appear when the desire is already well advanced, or when nutrition is low from other causes. For this reason nausea and vomiting increase the danger. The pressure against the diaphragm may interfere with the circulatory system. The exhaustion of attending labor sometimes leads to fatal termination. In all cases the enforced confinement in imperiectly ventilated rooms is injurious, therefore in mild cases pregnancy may be considered a serious complication of tuberculosis, and in advanced cases a very dangerous one. The effect of tuberculosis on pregnancy is slight except where there is considerable fever and coughing, in which cases absorption is common. The fetus is rarely infected. The chances are that the child will be born free from tuberculosis, but that it may possess a predisposition to the disease. A pregnant woman in an advanced stage of tuberculosis is apt to die shortly after labor, if the labor has been severe; in milder cases the woman is apt to go to pieces during the puerperium.

Restriction on Marriage.—The question of imposing restrictions on the marriage of tuberculous individuals by legislative enactment has been widely discussed without satisfactory answer. Each case requires judgment concerning the expediency of allowing the pregnancy to continue when a couple in comfortable circumstances desire a child, and the wife had only some slight tuberculous involvement of the lungs. She can be put into the best hygienic surroundings during her pregnancy and puerperium. When, however, a woman must care for her house and remain indoors, and when she would be obliged to nurse and care for her baby, conception should be absolutely forbidden. For these patients artificial sterilization is a legitimate and praiseworthy operation. It is better to determine on an operation that does not remove the ovaries. The vaginal resection of the tubes is generally the simplest and best, un-

less some other pathological condition indicates laparotomy, when, of course, the abdominal resection would be done. When a probability of the cure of consumption remains, some other means of preventing conception may be advised. It is not necessary to advise abstinence from sexual intercourse. The question of interrupting the pregnancy depends upon the gravity of the patient's tuberculosis, and the kind of care she can afford to have. In case of inability to have hygienic surroundings or when there is a complication of tuberculosis with heart or kidney disease, an abortion should be performed. The operation should be decided on before the twentieth week. Later an attempt should be made to carry the child to the period of viability. Rapid emptying of the uterus is the best method of inducing abortion. Anesthesia, preferably by means of ether, is not contraindicated. After the period of viability is reached labor should be induced if there is failure of nutrition, exhausting cough or severe dyspnea. Otherwise it may be postponed till the thirty-sixth week. The bougie method should not be employed, but rather the method of operation should be that which hastens labor. In the most urgent cases, a vaginal Cæsarean section may give a better chance of saving mother and child. Oxygen should be freely used at the first sign of exhaustion, also strychnine as a tonic should be given hypodermically as indicated.

During the forty-eight hours of the puerperium, oxygen, strychnine and physiological salt solution should be at hand, as the most imminent danger is from circulatory disturbances. Later the nutrition and fresh air are of the most importance. The patient should, if possible, lie most of the day in the open air. The child should never be nursed by its mother, nor remain in the same room with her. When possible it should be fed by a wet nurse. Complication of puerperal fever with tuberculosis of the puerperium is, of course, the greatest danger. On the whole, Dr. Bacon believes that by the use of oxygen during labor, and the thorough use of the fresh air, rest and feeding cure, before and after labor, that many of the consumptive pregnant women in the United States can be brought through pregnancy and the puerperium, and eventually, perhaps, be cured.

Maternal Syphilis.—Dr. George S. Whiteside, of Portland, Ore., said that syphilis in the mother without paternal syphilis is rare, while the reverse is common; therefore maternal syphilis may be defined as only the disease of the pregnant woman. He called attention to the lack of careful discussion of the subject in textbooks, and to the great difficulty of making a diagnosis of syphilis in married women. Their own ignorance of the disease, their belief in their husbands, combined with the reluctance of a man to confess his unfaithfulness to his wife's physician, all tend to obscure the diagnosis unless the symptoms are very definite. Therefore, he cautions physicians to look oftener for syphilis, and they will find it explaining obscure symptoms. He advises the free use of mercury for pregnant syphilitic women as the only way of protecting the health of the fetus from inheritance. If the child survives the first acute febrile outbreak of secondary symptoms it will probably respond to treatment and very likely grow up a well individual, especially if born in the better classes. Even in cases where some deformity of bone has taken place, as in hydrocephalus, anti-syphilitic treatment often causes an absorption of the products of the disease, and later the deformity is not noticeable. Mercury is best administered to the infant by inunction, but it may be necessary to use hydrarg. cum cretâ in spite of the action of the bowels. Treatment should be continued for two months after all symptoms have disappeared.

Physiological and Legal Status of the Fetus in Utero.—Dr. W. H. Sanders, of Montgomery, Ala., considered this subject from an ethical point of view. Truly a child was alive from the very moment of its conception. He pointed out certain differences between the processes of conception in plants and animals, and argued that it was not justifiable to consider the human child as a living being with its rights and privileges only after it had been delivered from its mother. It was really an independent organism nine months previously.

Present Day Methods of Conducting Labor Cases.—Dr. J. A. McKenna, of Lansdowne, Pa., made a strong appeal for fuller asepsis and antisepsis in maternal works. From the fact that thousands of women still die of puerperal sepsis it was urgent that this factor should be eliminated. He was not in favor of intrauterine douches, but laid much emphasis on the proper cleansing of the hands of the obstetrician. A physician's hands were septic instruments, and only the most painstaking cleanliness could render them even approximately sterile. The forceps are a potent cause of septic infection, and should be used as rarely as possible.

Female Bony Pelvis.—Dr. Effa V. Davis, of Chicago, gave the results of a series of pelvic measurements made in her private, hospital, and dispensary practice for the past five years. In her measurements of 124 pelves she had found that 26 per cent. were deformed. Of these 70 per cent. were of the contracted pelvis order, 15 per cent. were flat. In her women with deformed pelves she had had 61 per cent. of normal deliveries. In contrasting the influence of surroundings, occupation, diet, etc., on the size and weight of the infant, she had found that in 88 women, who were well-to-do, ate good food, and were not compelled to work, the average weight of the child was 8.06 pounds. In 38 who were in moderate circumstances, but who did much of their own work, and led a more active life, the average weight was 6.7 pounds, while in nine patients who were badly fed and overworked, and who lived in very poor surroundings, the average weight of the child was 5.77 pounds. She had found that more deformed pelves were found among her clients who were natives of the United States than among the foreign born. She insisted on a regulation of the diet to control the size of the child in all those who had small pelves, and who were afraid to have large babies. She concluded her study as follows: Deformity occurs often enough to make pelvimetry a practical part of the examination of pregnant cases. Generally contracted pelves form by far the most common deformity in American women, though the rachitic pelvis is often present in those who have been artificially or imperfectly breast-fed in infancy. Inebriety in the parents is the most constant element toward degenerate types in the deformities studied. The size may be regulated by diet and exercise if carried out strictly for a proper time during the last three or four months of pregnancy.

Maternal Impressions.—Dr. E. T. Shelly, of Atchison, Kan., spoke with much emphasis, denouncing the maternal impression hypothesis as an unmiti-

gated and unwarranted superstition. Teratologists were emphatic on the subject and with unanimity stigmatize the idea as a popular delusion, but practitioners could not be made to give it up, notwithstanding the overwhelming evidence of embryology, anatomy and physiology against it. He held that it was very unwise, even criminal, for the general practitioner to countenance the belief in his patients, and thought that if they all combined to "down" the delusion many happier hours would be vouchsafed the pregnant woman.

Syncytioma Malignum.—Dr. Lauratt Branson, of Iowa City, reported the history of one case of this condition, and read an essay on the subject.

(To be Continued.)

NEW YORK PATHOLOGICAL SOCIETY.

Stated Meeting, held March 8, 1905.

The President, Harlow Brooks, M.D., in the Chair.

The Identification of the Pneumococcus in Blood Cultures.—Dr. Thomas Flournoy described a characteristic appearance of the pneumococcus which he had seen in his work. Although made independently, his observations could only be taken as corroborative of Schottmüller's and of Rosenow's, which had appeared previously. In the course of a number of blood cultures made upon cases of lobar pneumonia it was noticed that colonies of the pneumococcus developed a brilliant green color in blood-agar plates. The blood cultures had been obtained by inoculating 1 c.c. of blood into a tube of melted agar and plated at the bedside of the patient. In this way a uniform mixture of blood and agar was obtained. The specimens were chiefly from severe, well-marked cases of lobar pneumonia. One was from the blood of a case of meningitis which was due to the pneumococcus. From the plates inoculations were made into other media and into mice. The green color was constant in the colonies of all these cases. It was seen best macroscopically and by transmitted light, but could also be seen under the microscope. The bacteria isolated in the cases mentioned were all fairly easy of identification by the ordinary cultural and staining methods. No work had been done on more doubtful strains. Apparently, however, the pneumococcus in a mixture of blood and agar develops a color not found with the ordinary pathogenic cocci. The explanation of the development of this color might possibly lie in some process comparable to the breaking down of old hemorrhagic foci in the body.

Dr. E. Libman, in the discussion, said that he had noticed the phenomenon but had not made many tests himself as most of his pneumococcus work was done on fluid media. It seemed that it was a method which was worthy of further trial because it would be a very rapid means of diagnosis, particularly if combined with some of the newer capsule stains.

Preliminary Report Concerning the Effect of the X-rays on Karyokinesis.—Dr. Harlow Brooks said that he had only a few words to say on the work which he and Mr. Goldhorn had been doing, because they had so far found only a few things of definite character. The investigation had been suggested by a presentation of Dr. Tilden Brown's a few weeks ago, before the Section on Genito-Urinary Diseases, in which he stated that in one hundred per cent. of the cases in which he had investigated the spermatic secretion of X-ray operators he had found absolutely no spermatozoa. The results of the few cases examined by the speaker confirmed this. Investigations were carried on to find what changes led to this absence of spermatozoa. Rats were selected for the experiment on account of the fact that in these animals spermatogenesis takes place very actively. So far the animals had been exposed only to the deep penetrating ray; that is, the ray which is designed to affect the deeper structures. Exposures were made for from fifteen to twenty minutes daily up to eighteen days. So far the results had been only very suggestive. Plates were shown indicating some of the changes found. At first exposure to the X-ray greatly excited the secretion of spermatozoa and if anything they were rather more active than normal. Although much work was still to be done they felt confident in saying that the X-ray increases the production of spermatozoa: that the X-ray after a considerable number of exposures does cause certain degenerative changes in the cytoplasm of the cells: that the X-ray does excite marked changes in the chromatin of the spermatocytes. So far the changes were not distinct enough to allow of conclusions being drawn from them. They were like changes found in a lesser degree in the normal. Later on karyokinetic changes took place which it was believed eventually resulted in the destruction of the chromatin of the spermatocytes and the formation of spermatozoa deficient in chromatin or entirely lacking heads.

Dr. James Ewing, in the discussion, inquired whether Dr. Brooks had any intention of using radio-activity as well as simple X-ray treatment. As he understood the nature of radio-activity and X-rays there were at least three forms of energy manifested. One of these was concerned with the emanation of a gas which was more active on the tissues. Did Dr. Brooks intend to employ all three forms of radio-activity?

Dr. Brooks said that so far they had found their studies so much more difficult than they had anticipated that they had no desire to undertake anything more. They had found great difficulty in carefully controlling the experiments. Many things had been seen in supposedly normal testicles which had not been before described.

The Practical Value of R. Stern's Bactericidal Test of Typhoid Sera.—Dr. Mary E. Goodwin gave a short account of her experiments with the above test, prefaced with an abstract of Stern's work. R. Stern, of Breslau, after examining the blood of fifty-nine typhoid and ninety non-typhoid cases for its bactericidal power on typhoid bacilli, decided that the bacilli were destroyed by much higher dilusions of the typhoid blood than of the normal. He found no fixed relation between the day in the disease when the blood was taken and the mount of immune body it contained. He gives as his strongest serum one which showed a decided reaction in a 1-4,000,000 dilution. The earliest day on which the bactericidal power was marked was the eighth, in one case the serum reacting in a 1-40,000 dilution and in another in a 1-4,000 dilution. The agglutinating power of the typhoid sera was not shown in nearly as high dilutions as the bactericidal power. He concludes by saying that the higher the dilution showing bactericidal action the greater the probability of the case being typhoid. His technic is briefly as follows: After inactivating the sera at 55° C. for thirty minutes, he makes the dilutions with 0.85 per cent. salt solution. For the complement he takes fresh rabbit serum in a dilution of one part to eleven of salt solution. The typhoid culture used was one which had been isolated about one year and was of moderate resistance, he having found that those recently isolated were too resistant, while the old cultures were killed by the rabbit serum alone. He put together in small test tubes 1 c.c. of the

serum dilution, ½ c.c. of a 1-5,000 dilution of a twenty-four hour bouillon typhoid culture in bouillon and ½ c.c. of the diluted rabbit serum, always using as a control, ½ c.c. of salt solution with ½ c.c. of diluted culture and ½ c.c. diluted rabbit serum. His control he plated from immediately, then put all the tubes at incubator temperature for two to four hours. At the end of that time he plated them all in agar, incubated the plates and counted after twelve to eighteen hours. All of this process Stern says can be done in one-half hour for one serum and the time reduced when more than one serum were tested at the same time. In testing 27 typhoid sera and 7 normal sera in the Board of Health Laboratory, Dr. Goodwin had found the test more difficult than the general tone of Stern's article suggested. The rabbit serum differed so much in its immune body content that sometimes it was necessary to test several rabbits before finding one that would not destroy too large a proportion of the bacilli added. After several failures a Mount Sinai Hospital culture and a New York Hospital culture which seemed to be suitably resistant were found. Among the few cases examined no serum was found of such unusual strength as Stern's, which showed the decided reaction in a 1-4,000,000 dilution. None of the sera showed a reaction above 1-200,000; the highest dilution of a normal serum showing a reaction was 1-100. The earliest serum tested was from a ten day typhoid. A 1-500 dilution gave a plate of 8,000 colonies while the normal serum control contained 100,000 in the same dilution. The bactericidal power was found in much higher dilutions than the agglutinating. It took a much longer time to make the test, about two hours for a single serum and an hour for each additional one. The test seemed too complicated for routine laboratory work but of undoubted value in obscure cases where a diagnosis could not be made. The full value of the results cannot be estimated until work has been done on obscure cases of colon and dysentery infection where one might be misled by the large amount of common immune body present.

Dr. W. H. Park, in the discussion, said that during the course of the work experience had been gained which seemed to him of some interest. The first results had been very disappointing. After reading Stern's first article the technic seemed to be very simple. Specimens of serum were taken from six typhoid cases and from four normal persons so as to get a rough estimate of the value of the test. The making of the tests took a full day. On the next morning it was found that the culture used was so sensitive that the rabbit blood alone had killed all the bacilli so that the plates were sterile. For a moment it seemed as though the test were a failure, but Dr. Steinhardt suggested that some other culture might show just sufficient resistance to resist the rabbit blood but be killed by the addition of a typhoid patient's serum. The Mount Sinai culture obtained from Dr. Libman was then tried and found to be of about the right resistance. A second point of interest was that during the course of four or five months this culture has shown no change and probably would never become as sensitive as the one first tried. Dr. Park thought that even in his second paper Stern made the test appear much simpler than it really was. However, with suitable cultures and great patience Dr. Goodwin had obtained results which, though not as definite as Stern's, indicated that the test might be of value in doubtful cases. Only a large number of tests could establish this. Dr. Goodwin would be very glad if anyone who had a doubtful case would send her some serum for further experimentation.

Concerning the Causes of Gall-Stones.—Dr. Edwin Beer read a paper on the causes of gall-stones, his purpose being (1) to indicate a new method of investigating the problem, and to show the results this new method had borne in his hands, and (2) to interest the members of the Society, so that more cases might be brought together and studied. A review of the work done by Naunyn and his pupils, which work has given rise to our present conception of the etiology of gall-stones, and of the confirming experiments of Mignot and Miyake, was briefly given. No one seemed to have tried to follow and analyze the genesis of stones in the human body. Dr. Beer's attention had been turned to the liver and its ducts. Here obstructions and inflammatory conditions are found which parallel the conditions which Naunyn thought underlay the process of gall-stone production. Eleven cases were collected at autopsy in which there had been a common duct obstruction for more than four or five weeks and in which a more or less severe inflammation of the extra and intrahepatic ducts had developed. In seven cases the common duct was obstructed by calculi, in four by tumors of various kinds. In the first series of four cases, as a result of the conditions of the experiments, stones formed in the liver ducts. In the second series of four cases, though apparently the same conditions were present, no stones developed, though stagnation of bile and inflammation of the mucous membrane of the bile passages were present. The absolute regularity of the results seemed to preclude chance, and though the series of cases was small, seemed to point to a new factor in the production of gall-stones. If we were to call this new factor an altered liver metabolism or a diathesis we could understand why stones developed in the liver ducts when stagnation and infection developed in cholelithiasis cases, they having the predisposition as evidenced by the older stones, and why they would not develop under similar conditions where no liver disturbance and no cholelithiasis were present. Dr. Beer's conclusions were as follows: (*a*) Naunyn's factors—stagnation of bile plus inflammation of the bile passage mucosa—do not seem to be sufficient by themselves to lead to gall-stone formation even though the time allowed for the working of the causes be adequate. (*b*) The first series of cases show that these two factors lead to stone formation in patients who previously had gall-stones. In these series we have the first real evidence of the factors underlying gall-stone production and the causes of cholelithiasis.

Dr. Otto H. Schultze, in the discussion, said that among the cases which came to the Morgue, in which gall-stones were rather common, the same thing had been shown as mentioned by Dr. Beer; namely, that in some cases of compression of the common bile duct where inflammation had taken place and every opportunity had been given to the factors mentioned by Naunyn, no gall-stones were found, and in some cases where gall-stones were found the common bile duct and the ducts throughout the liver seemed to be quite normal. When stones were present in the bladder it seemed to him as likely that the stones caused the inflammation as that the inflammation was a factor in producing the stones.

Dr. Charles Norris said that so far as his experience went he quite agreed with Dr. Schultze. The gall-bladder was frequently found to contain stones when there were no signs of previous inflammation. In old cases there was often a thickening of the wall of the gall-bladder.

Dr. E. Libman said that he could not speak positively concerning his cases without consulting the records, but

his general impression was that the material ran as Dr. Beer had said. He did not remember any case where the stone had formed after compression of the ducts by tumors. He did remember at least one case in which there was occlusion of the common-duct by gall-stones with stones in the hepatic duct.

SOCIETY OF THE ALUMNI OF CITY HOSPITAL.

The 120th Stated Meeting, held February 8, 1905.

The President, Joseph F. Terriberry, M.D., in the Chair.

Pityriasis Rosae.—Dr. George T. Jackson presented this case, the patient being a man twenty-five years of age. After briefly stating the history of the case and making a few general remarks on the nature of the disease, Dr. Jackson emphasied the importance of not employing too much local treatment in these cases but rather of relying largely upon internal alteratives. There was no discussion.

Vesical Calculus.—Dr. W. S. Reynolds reported a case of vesical calculus in a male child, and exhibited an X-ray plate showing the calculus *in situ* before it had been removed. He also passed around the stone, which is about the size and shape of a pigeon's egg. The speaker directed special attention to the interesting fact that the calculus had been distinctly palpable on rectal examination and that the sensation imparted to the examining finger was very similar to that in cases of prostatic enlargement in the adult.

Appendicitis and Abscess of the Liver.—Dr. Adolph Rupp said that liver abscesses occurring in connection with acute appendicitis are not often mentioned in discussions on appendicitis. This is not to be wondered at when more than 1,000 successive cases may be operated by a surgeon without meeting a case of liver abscess associated with appendicitis disease. Happily liver abscesses occurring in connection with appendicitis are rare; but their rarity makes them none the less interesting and important pathologically or clinically.

Case.—S. L., merchant, aged forty-eight years; was seen at his office at 2 P.M., October 8, 1904, giving a history of indigestion. No fever, no acceleration of pulse, only vague intermittent colicky pains, anywhere and everywhere over the abdomen. Now and then nausea. Complained of lumbago and malaise. Was seen again at 6 P.M., because the codeine-bismuth-caroid mixture had given no relief. At this time no fever, and no change since two o'clock. Gave a quarter of a gr. of morphine hypodermically, and continued the above mentioned mixture. Diet only water. The sclera were slightly jaundiced, as well as the skin. October 9, 9 A.M., patient subjectively better and comfortable; but now a localized intumescence in the appendicular region could be made out, beside McBurney's point. Temperature 101° F. Diagnosis of appendicitis made, and surgical treatment advised. Patient entered Dr. Wm. T. Bull's Hospital, and was operated at 8 P.M. by Drs. Poole and Walker, with attention to all necessary details, and after a manner that left nothing to be otherwise desired.

The surgical history of this case lasted about one month, October 9 to November 10, when the patient died in collapse. In looking over the tracing of the temperature chart, the run of the fever can be divided into five unequal sections, each succeeding section being an aggravation of the preceding one; and it is quite natural to assume that some special pathological cause intervened to produce the change, in the course of the general pyemic infection.

Post-mortem examination revealed no general peritonitis; hepatitis, and two large abscesses, one the size of a large fist, the other about half that size, in the middle portion of the right lobe of the liver, rather anteriorily and to the left. Liver generally infiltrated with pus or small abscesses. The right lung was adherent to the ribs and diaphragm, solified, and the seat of septic pneumonia. Kidneys normal. Appendicular stump normal.

From the facts developed in the history of this case, Dr. A. Rupp believes that the appendicular disease was only incidental, and that no "inflammatory product" originating in the appendicitis "caused" the liver abscesses; but that the same original infecting cause or causes which gave rise to the early mental depression which lasted throughout, and became aggravated as the disease advanced, gave rise simultaneously, or in rapid succession, to the appendicitis, engendered the rapid formation of pus, which in turn infected the wound, and developed the liver abscess and the septic pneumonia. The septic developments were rapid. The temperature chart shows that when the outflow of pus was facilitated the temperature rise was lessened; but when the strength of the patient was rapidly declining, and conditions unavoidably became such that the escape of pus was rendered impossible, and became stored, as in the lung, the temperature rise and fall became abrupt and intermitted with very brief intermissions.

Therapy.—In this case the surgical operation was necessarily only an expectant remedy. It removed only one infected organ, and that organ was not the source of the subsequent complications. Dr. Wm. T. Bull had suggested the use of antistreptococcus serum. But, from his experience, he said he was "afraid" of it; however, he left its application for me to decide. I decided negatively, because even if a remedial serum were at hand, it could have been of no curative value in this case, and the sources of the toxic and anatomopathological causes could not have been reached by it. All other symptoms were treated as they arose. Morphine alleviated the severity of the chills, at least in so far as the feelings of the patient were concerned. Lavage of the stomach gave so much comfort, the patient asked for the procedure.

Dr. E. H. Poole confirmed Dr. Rupp's report on the history of the operation.

Dr. Brooks Wells considered it a very interesting case and remarked that he had observed similar cases in which the clinical picture simulated acute yellow atrophy of the liver, and in which the pathological examination showed degeneration of the liver following a septic pyelophlebitis.

Dr. C. S. Cole urged the importance of early operation and recited the history of a similar case observed during his service as house surgeon at the City Hospital, in which a diagnosis was not made till the time of autopsy. He expressed the opinion that exploratory puncture in these cases was usually disappointing and that blood counts unless showing a leucocyte count of at least 20,000 were not to be relied upon.

Dr. Morris Manges remarked that Dr. Rupp's case was certainly an interesting one, but thought that liver complications with appendicitis were not by any means so rare, referring to reports of Lindhart and the reports of the Mount Sinai and Presbyterian hospitals. Two forms of cases were met with: those in which there occurred mesenteric thrombosis and pyelophlebitis and those in which there occurred liver abscesses following general septic pyemia. He recited the history of a case observed by himself in which death had occurred

at the fourth day in spite of early operation. He believed that exploratory puncture was of great value and that leucocyte count above 15,000 was a very important sign.

Dr. Rupp, in closing the discussion, maintained that Dr. Manges' assumption that his case was similar to those reported elsewhere could not be based upon observed facts, and was of the opinion that Dr. Manges' views would coincide with his if he had seen the case himself.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Stated Meeting, held March 8, 1905.

Dr. Howard M. Fussell in the Chair.

New Apparatus.—Dr. H. E. Wetherill called attention to his hemoglobin scale and color-test book for the better determination of hemoglobin moisture, perspiration, urine and the color of the feces. He also showed a new hematokrit which measures in a two-way motion instead of one, and gives 25,000 revolutions per minute.

Fracture of the Cervical Spine.—Dr. Charles W. Burr exhibited a patient with this affection. The patient was a white man, fifty-six years of age, who had fallen in November, 1898, from a cart, striking his neck and shoulders. He was unconscious for a time and was taken to a hospital. At first he had severe pain in the neck, shoulders and both arms. He could not move the arms and could not walk. He stated that he could move the legs some. About six months later he was brought to the Philadelphia Hospital. At that time he could walk fairly well with short, stiff steps. He held his neck very stiffly, and movements in the arms were limited by rigidity and by weakness. The grip was very weak. The deep reflexes were increased. The skiagraph reveals a fracture of the body of the fifth cervical vertebra with fracture of the lamina. At the present time he walks well. His head is held stiffly. He can move it a little but with pain. There is considerable movement of the arms with rigidity. The knee-jerks are a little increased. The plantar jerks are normal. There is a little muscular wasting in the deltoids but none elsewhere. There is some spasmodic retention of urine.

Dr. M. K. Kassabian gave some statistics of fractures, showing that a very small percentage represent those of the spine. In his own 1,500 cases of fracture there was only four per cent. of fracture of the spine.

Dr. Morris Booth Miller stated that in such a fracture operation should only be undertaken when there is pressure upon the cord or from bone. Anchylosis gives a fair chance of slow absorption of hemorrhage and gradual restoration of function. To secure that no device is better than a modified jurymast.

How Can the Physician Profit by Preventive Medicine?—Dr. J. Madison Taylor, in this paper, presented evidence to show that it is necessary that preventive medicine shall be exhibited to the profession as a means of advantage to themselves as well as to the community. He submits that the relationship of the physician to the patient is on the wrong basis; that the practitioner should be given free opportunity to inspect the members of a household at regular peiods or at will, and not called only when there is illness; that disease is now being studied from the standpoint of economics, hence prevention is to be welcomed as a source of general wealth; that legislatures can be made more effective if physicians will do their part toward the prevention or limitation of preventable disease; that physicians should more clearly point out the ways to reform and educate the public; that they should accept the authority of the health boards more cordially and work with them to accomplish results. He recommends that physicians should adopt a different fee system, and states that it is a false position for the physician to earn no fee, except by being invited to meet exigencies; better, he says to adopt the plan long since found necessary by lawyers, of demanding a retaining fee or yearly stipend of the householder, thus giving them access to the house to rectify constitutional peculiarities and save from peril. He alluded to the neglected duty of the physician of discouraging the use of many medicines, bitters, tonics, cough medicines and the like, whose chief attractiveness is the contained alcohol or narcotics.

The Osmic Acid Treatment of Tic Douloureux.—Dr. W. Wayne Babcock reported a case of trifacial neuralgia of extreme severity. The conditions had persisted for thirty-five years, despite eight operations, including two attempts to remove the Gasserian ganglion, and the excessive use of drugs had at one time led to temporary insanity. About nine months ago a two per cent. solution of osmic acid, under cocaine anesthesia, had been injected into the inferior dental nerves. More recently the infra-orbital, palatine, and supra-orbital nerves were injected. The patient has gained thirty-five pounds, and his physical condition is revolutionized. The case was cited to indicate that osmic acid injection may be of value in cases of the most persistent and pronounced type of tic douloureux. No major operation, he stated, is warranted in the treatment of trifacial neuralgia until the futility of osmic acid injections into the peripheral nerve trunks has been proved.

Dr. L. J. Hammond called attention to the relations of the nerve fibers comprising the trifacial, and thought that absolute cure of these pains should not be expected until not only the trifacial but the different branches of the fifth nerve were dealt with.

The Problem of the Treatment of Laryngeal Tuberculosis.—Dr. W. G. Harland read this paper, which gave briefly what is known about the prevalence and natural history of tuberculosis of the larynx. The paper states that the vocal cords, interarytenoid fold and arytenoids are parts most often affected, involvement of epiglottis or epiglottic folds being more serious. Most forms of the disease pursue a harmless chronic course, edema and deep ulceration, however, are dangerous. The laryngeal lesion Dr. Harlan considers probably does little harm, except when it causes dyspnea, pain or difficulty in swallowing; it forms an index of general health and resistive power. Treatment is directed toward lessening irritation in the upper air tract, toward healing ulcerations, and toward building up general health. The X-ray he has found to be of use in some cases. He thinks that serum therapy promises much.

Dr. W. Wayne Babcock referred to a case of laryngeal tuberculosis seen within the last four or five months. On the day he first saw the patient she had received an intralaryngeal application. She had dyspnea and became unconscious. A rapid tracheotomy was done, after which she improved and gained in weight. The tube was removed. Further applications were not made by the laryngologist for fear of the edema, but after two or three months the edema again developed. A second tracheotomy was done and since that time the patient has worn a tube continuously. Her voice is better and she has gained in weight.

Dr. Ross Skillern thought that if the laryngologist gave the greatest possible amount of relief with the

smallest amount of actual manipulation of the diseased structures he is doing good work.

Dr. L. J. Hammond has operated on eight cases of laryngeal phthisis in the past sixteen or eighteen months with good results. He thinks the operative procedure is based upon rational principles, in that in this condition, as in a tuberculous condition of the joints, the best treatment is to put the parts to rest.

Dr. George E. Pfahler mentioned a case referred to him by Dr. Cleveland in which he is making the X-ray applications externally, using the tube of high vacuum and at a distance of from 15 to 20 inches. Distinct improvement has been noted in the case by Dr. Cleveland.

NEW YORK ACADEMY OF MEDICINE.

Section on Orthopedic Surgery.

Regular Meeting, held March 17, 1905.

The President, Homer Gibney, M.D., in the Chair.

Equinovalgus Deformity.—Dr. Royal Whitman presented the following cases: The first patient, a girl eleven years of age, illustrated the practical cure of equinovalgus deformity, caused by paralysis of the tibialis anticus muscle. This operation, which he had described before on several occasions, was conducted as follows: The tendon of the longus hallucis was divided, drawn through a hole bored in the navicular, looped over and sewed to itself and to the shortened tendon of the tibialis anticus, at a sufficient tension to hold the foot in slight dorsal flexion. Arthrodesis was then made between the head of the astragalus and the navicular and the two bones were sewed to one another with strong silk. The foot was then placed in an attitude of moderate varus and a plaster bandage applied. Soon after, the patient was encouraged to walk about, the plaster apparatus being retained for about three months in order to impress the new attitude upon the foot. This operation was, as in this instance, as a rule so effective that no apparatus was required. It might be noted that the accessory tendon of the great toe was quite sufficient to hold it in proper position.

Clubfoot.—*Case II.*—This patient, a boy six years of age, illustrated the effect of the Phelps' open incision in correcting clubfoot. He had performed a number of these operations recently in a type of cases familiar in hospital practice in which, because of neglect of after operation, a certain degree of varus persisted. He thought no operation was as effective as this in assuring a permanent result in cases of this class.

Case III.—This patient, a girl sixteen years of age, came to the hospital from Porto Rico. She presented a congenital clubfoot that had never been treated and yet the deformity had been completely overcorrected by forcible manipulation without dividing a tendon even. The case was presented to contrast it with the preceding, as an illustration of the fact that the resistance of congenital deformities of this class by no means corresponds to the age of the patient. It was his custom in the treatment of clubfoot in youth, and adult age, whenever possible, to divide the operative treatment into several sittings, forcible correction always preceding more radical procedures. In this case the correction was easily accomplished in three operations.

Excision of the Ankle for Tuberculous Disease.—*Case IV.*—The patient, a woman twenty-five years of age, was admitted to the Hospital for Ruptured and Crippled last summer. She presented advanced tuberculous disease of the ankle of three years' duration. On investigation the disease was apparently confined to the astragalo-tibial joint. The astragalus was removed and in order to eradicate the disease of the tibia it was necessary to open its medullary cavity. It would be noted that the result was not only a cure of the disease, but free motion had been restored. The ankle joint was most favorably constructed for radical treatment since, as in this instance one might not only remove the disease but restore function. Another point was of interest in view of the question of plugging cavities in bone with iodoform filling, that although this might have been tolerated the patient's condition could hardly have been improved by such treatment.

Tendon Transplantation for Spastic Hemiplegia.—*Case V.*—This patient, a girl eight years of age, presented on admission to the hospital, the ordinary equinovarus deformity accompanying hemiplegia. The contractions having been overcome, the tendon of the tibialis anticus with the lower portion of the muscular substance was divided into equal parts, and the outer half was attached to the cuboid bone. The foot was fixed in the overcorrected position by a plaster of paris bandage for several months and the original deformity appears to have been overcome. In cases of this class it must be borne in mind that the operation simply restores in some degree the balance of the foot, but that cure can only be assured by constant supervision.

Torticollis.—Dr. Homer Gibney showed this patient. The boy was admitted last November, Dr. Gibney's service. He held his head inclined to the right, chin pointing over right shoulder—a compensating lateral dorsal curvature. Tendons of the sternocleidomastoid were divided subcutaneously, after which a jacket and jury mast were applied. The jacket was continued until within the past week when it was removed. There is no limitation of motion, no scar, spine quite straight and deformity entirely overcome.

Injury of the Cervical Vertebrae, with Symptoms of Osteitis.—Dr. Myers presented this case. Probably fracture of the second cervical vertebra. Cured with perfect motion in five and a half months. M. P., boy, four years of age. October 1, 1904, fell out of bed, turning a somersault. His two brothers fell on his neck. When his mother picked him up he seemed to have no power in the muscles of his neck, his head falling from side to side. He was put to bed; no other treatment. October 22, 1904, first seen by Dr. Myers at St. Luke's Hospital. Head was held a little flexed, not rotated to either side and all motions of neck, especially rotation, were markedly restricted by reflex muscular spasm. Great tenderness over second cervical vertebra. Reflexes increased, but no disturbance of sensation below the point of injury. Temperature 98.8° F.; respiration, 28; pulse, 86. He was put on a Bradford frame, with his head tied down. November 15, motion increasing somewhat in all directions. Second vertical vertebra still tender. Skiagraph shows no dislocation. Reflexes normal. November 21, retention head brace applied. Bradford frame continued. January 28, 1905, no vertebral spines especially prominent. Rotation to right and left 60 degrees. Inclination to right and left 60 degrees. Flexion and extension but slightly restricted now. No pain. February 2, brace removed and five days later he was allowed up. February 21, no deformity. Motions free. No pain or spasm. Discharged cured.

Osteoperiarthritis.—Dr. Carlton Wallace showed a child nine years of age, a typical case of hereditary specific disease. It is interesting because one sees few of these in orthopedic hospitals and clinics. She has

osteoperiarthritis of both knees, ostitis of both tibiæ and two or three ulcerations. She was sent to Sea Breeze Hospital, an experimental institution for the sea air treatment of surgical tuberculosis, last June. Was seen in November and it was diagnosed then as specific. There was much tenderness then over both tibiæ, but this has disappeared under potassium iodide treatment. She cannot stand erect and the knees are held at an angle of 170 degrees, but the joints are not especially painful. Her general condition has much improved and she has gained eight pounds in weight. She was discharged in March, there being no evidence of tuberculosis.

Equinovarus.—Dr. Hibbs presented the following cases: J. K., boy, aged three years, entered the New York Orthopedic Hospital June 21, 1904, with both feet in a position of marked equinovarus. The deformities of his feet were corrected by manipulation under ether at several different times. After this, however, there remained such an amount of twisting of the tibiæ that it was necessary to do an osteotomy on both. This operation was done January 13, at the junction of the middle and lower third. It was necessary to rotate the lower fragment with the foot outward, about 60 degrees to correct the deformity. There was little difficulty in the treatment of the deformity of the feet, but this condition of twisting of the tibia sometimes seen in such cases, cannot be overcome except by osteotomy.

K. G., girl, aged eleven years, entered ward June 17, 1904, with feet in a position of equinovarus, slight amount of internal rotation, no twisting of tibiæ. Walked on dorsal edge and outer aspect of foot, where there was a great callous. On July 11, July 20 and August 1, stretched and put up in plaster. August 13, tendo Achillis lengthened 1½ inches in both legs. Feet placed at 90 degrees in plaster.

Boy, aged three years, entered ward October 19, 1903, with a paralysis of the small finger, the result of severing a branch of the ulnar nerve. October 23, the branch of the ulnar nerve supplying the little finger was sutured and the hand put up in plaster. November 14, dressings removed, wound healed. Nerve showed signs of the beginning to revive. December 4, no evidence that the function of the nerve had been restored as there was still loss of power in the flexors of the small finger. Discharged. This boy had not been seen by Dr. Hibbs again until March 16, when it was observed that there was power in that tendon. The boy does not use the finger quite properly yet, but neurologists who have seen the case say he is steadily gaining ground.

NEW YORK OBSTETRICAL SOCIETY.

Stated Meeting, held March 14, 1905.

The President, J. Riddle Goffe, M.D., in the Chair.

Tubo-Ovarian Abscess. Five Years Subsequent to Vaginal Salpingo-Oophorectomy for Pyosalpinx of Other Side.—Dr. Le Roy Broun presented a specimen of tubo-ovarian abscess with uterus which he had recently removed for acute symptoms referred to the right iliac region. The abscess was first emptied through a vaginal incision, and then the sac which communicated low down with the large intestine was removed through the abdomen. On account of the desperate condition of the patient, the opening in the intestine was treated extraperitoneally by gauze drainage into the vagina. The recovery has been complete except for the presence of a small fistula. This experience, he says, will cause him to hesitate about leaving the other tube if one is the seat of purulent salpingitis.

Double Tubo-Ovarian Abscess. Complete Hysterectomy.—Dr. Le Roy Broun presented the uterus and adnexa he had removed from a patient, thirty-three years of age, who had been sick for a week with symptoms of acute salpingitis, following by one month symptoms of an acute urethritis and a profuse vaginal discharge. Recovery was uninterrupted.

Calcareous Degeneration of a Fibromyoma.—Dr. Le Roy Broun presented this specimen that he had removed from a paranoiac, who had been delivered eight years previously of stillborn child. She had believed the child was alive, but had been kept by the physician for experimental purposes. She had been very anxious to have children, and considered herself to be again pregnant.

Fibro-Sarcoma of the Ovary.—Dr. Malcolm McLean presented a large solid tumor of the right ovary removed from a patient twenty-five years of age, who had first presented herself about eight months prior to the time of its removal. The symptoms had been pain in the lower abdomen, the presence of a rapidly growing tumor and a diminution in the amount of the menstruation. The examination gave the physical signs of a subperitoneal fibromyoma. The peritoneal cavity contained about two quarts of yellow viscid fluid, and the thickened parietal peritoneum showed numerous small tubercles. Recovery had been complete. The pathological report showed it to be a round-celled sarcoma with an abundance of fibrous tissue.

Teratoma.—Dr. Malcolm McLean presented the photograph of a newborn child that presented a teratomatous mass springing from the pelvis and lower fourth of the child's body which was considerably larger in diameter than the head of the child. The pregnancy was marked by an unusual amount of abdominal soreness and tenderness. The labor progressed favorably until the presenting occiput reached the pelvic floor. A little extra effort succeeded in the delivering of the head, but further progress and delivery was accomplished only after considerable manipulation. After the shoulders were delivered it was evident that there was something detaining the rest of the fetus and abdominal palpation showed the uterus contained a form larger than the body of a normal child.

Sudden Elevation of Temperature During Labor.—Dr. H. C. Coe related the history of a patient, who had severe rigor with rise of temperature of 104° F.; at the termination of the first stage of a labor that had been induced two weeks early by means of cervical gauze packing because of a low output of urea and symptoms of a threatening toxemia. Temperature declined to 101° F. at the completion of the labor and her subsequent convalescence was uneventful except for a sharp attack of sciatica. During the fourth week another rise of temperature occurred for two days, which was thought to be due to grippe. The urine, which had returned to normal, again showed a low urea output after a more liberal diet, but without any evidence of renal trouble. Dr. Coe asked for the probable cause of the febrile movement during labor, and the significance of the low urea output in pregnant women, especially in cases in which there are no toxic symptoms. He asked if this alone is indication for premature interruption of the pregnancy.

Dr. Cragin said small amounts of urea are occasionally seen without symptoms, and mentioned two cases of his own, in which only 75 grains were passed a day, but both went to full term without symptoms. A milk diet and a large amount of fluid will make the urea low, and it is found that normal pregnant women do not pass as much urea as was formerly supposed. Among 100 cases ex-

amined at the Sloane Maternity Hospital during the last month of pregnancy, the largest amount executed was 300 grains a day, and any amount between 250 and 300 seemed to be normal. A woman passing 50 or 75 grains a day without toxemic symptoms may be allowed to go to full term, but under careful observation.

Dr. E. H. Grandin stated that it is not so much the amount of urea but the amount of urine passed in twenty-four hours, taking into account, of course, the diet.

Dr. W. S. Stone referred to a case of severe toxemia he had recently seen, in which the urea output was twice the normal amount.

The Prophylaxis and Treatment of Pyosalpinx — Dr. James N. West from an analysis of the reports of many thousands of pathological examinations of tubal contents has concluded that 62½ per cent. are caused by gonorrhea; about 16 per cent. from the results of incomplete abortion: the remainder of uncertain origin; a few arising from pathogenic organisms conveyed to the tubes from other parts of the body, as tubercle bacilli, colon bacilli, *Bacilli lanceolatus*. Seventy-eight per cent. then of the cases of pyosalpinx are possibly preventable. From his experience with washing out the uterus of two freshly infected cases through a cervical speculum with an alkaline solution followed by 1/240 solution of silver nitrate, he is encouraged to try the same treatment again. Pyosalpinx from infection following an incomplete abortion, he believes, can be entirely prevented by operating upon every case of inevitable abortion under anesthesia and perfect aseptic technic. His treatment of pyosalpinx would depend upon the stage to which the disease has advanced. In an acute and virulent stage, he would advise rest in bed, suitable dietetic and hygienic measures, icebag to the abdomen and hot vaginal and rectal irrigations, alternately every four hours. As soon as the acute symptoms have subsided, he would operate, although procrastination has the advantage of meeting less virulent micro-organisms. In the more advanced cases, in which the walls of the tubes and ovaries have coalesced into one large abscess sac with several communicating chambers, lying in the cul-de-sac, he would perform a vaginal incision, and after washing out the cavity with two per cent carbolic solution through a return catheter, a drainage tube is inserted and surrounded lightly with iodoform gauze. The tube is left in for five weeks. His general plan of procedure is to remove the tubes, leaving one or both ovaries, if possible. If the uterus seems to be necrotic, the seat of an abscess, or very badly injured in the course of the operation, it also is removed. The vaginal incision is first made if the cul-de-sac is bulging with a large abscess. If not the abdominal opening is made at once. Vaginal drainage is always used if there has been great traumatism, if pus has been spilled, and if there is excessive oozing from ruptured adhesions. Injury to the intestines and complications with the appendix are so frequent that in all cases where the tubes are to be removed, he thinks the operation should be done through an abdominal incision. Of 13 of his own cases during the past year, eight had vaginal drainage; in two the ovaries and uterus were also removed. All cases recovered. His conclusions are: (1) That all cases of abortion should be operated upon; (2) that gonorrheal invasions should be fought from their start to their finish; (3) that the greatest possible aseptic precautions should be used whenever the uterus is entered by fingers or instruments; (4) that all cases of pyosalpinx should be operated upon; (5) that certain cases may be relieved by a proper form of drainage; (6) that an operator should not enter upon a case with a fixed determination to do a radical operation; (7) that the vaginal route is unsuitable for a radical operation; (8) that vaginal gauze drainage is the best form, and has its definite indications and use.

Dr. E. H. Grandin, in the discussion, considered prophylaxis is the most important part of the subject, and would consist not only in proper hygiene on the part of the woman, and instruction to the physician and nurse, but also in teaching both men and women the dangers of the gonorrheal infection. The treatment of pyosalpinx should be surgical, operating in the interval whenever possible. If a swollen tube approaches the vaginal vault and is surrounded by a plastic exudate, the pus may be best evacuated through a large vaginal incision. He only uses gauze drainage. In other cases he prefers the abdominal route because the eye assists the finger. In gonorrheal infection he would remove both adnexa and also do a supravaginal hysterectomy.

Dr. R. H. Wylie was surprised to hear that gonorrhea is the cause of such large proportion of cases of pyosalpinx, as he had been led to believe that incomplete abortion was a more common cause than is generally supposed. The operative procedures advocated in the paper were those he had been using for a long time, except that he does not leave in the tube for such a long time. The abdominal route, he considers, is best for conservative work, as in young women he prefers to leave the other tube, although in chronic cases with much destruction of tissue, he would remove it but leave the ovary. He does not believe in waiting for the interval to operate, because the cases will recover if done in the acute stage, provided the work is done cleanly and the disc and tissue is removed.

Dr. Le Roy Broun considers the use of gauze in draining tubo-ovarian abscesses is objectionable, because of the amount of pain it causes in its removal and renewal. He prefers to use two tubes, sewed together, one small tube with only one or two fenestra at its upper end, and a larger one with fenestra along its entire length.

Dr. Ralph Waldo said that of 25 patients operated upon at Lebanon Hospital since June 1, 1904, for pyosalpinx, there were only four who had a history of gonorrheal infection. The others gave histories of septic endometritis, in most instances the result of an induced abortion. He ordinarily operates early in the disease through an abdominal incision, and if there is no reason to believe that a collection of serum or blood will result, the abdominal wound is tightly closed. Otherwise he usually drains with gauze through the abdominal incision.

Dr. H. C. Coe thought some confusion had been introduced into the discussion by considering acute salpingitis in the same category with pyosalpinx. In acute cases his experience had not been favorable to operation, and he did not think operations could be done at that time with impunity. He was accustomed to teach that the classical descriptions of pyosalpinx and the conditions upon which a diagnosis is based, are more often absent than present.

The placing of a tube within ordinary abscess cavity, he thought would not assure drainage of the origin of the purulent focus, and leaving a tube for such a long time would be apt to form a permanent fistulous tract.

Dr. J. Riddle Goffe spoke of the difficulty in the scientific determination of when a man is cured of gonorrhea so that he may safely marry, and related the history of two patients who had contracted gonorrhea from their husbands after they had been pronounced cured by eminent genito-urinary surgeons.

Dr. A. B. Tucker reported a patient in which both tubes and one ovary were removed for pyosalpinx. She subsequently became pregnant, and was delivered of a

living child. In the light of such an experience he believed in saving all the structures possible, as even the stumps of excised tubes may become patulous and allow impregnation to occur.

Dr. James N. West, in closing the discussion, said that he had found that gauze drainage, which was all removed by the sixth day, allowed the abscess to reform, and on this account he had introduced the rubber tube. He does not believe in removing both tubes if one is apparently healthy. The statistics in regard to the relative frequency of gonorrhea and abortion as a cause of pyosalpinx, he thought, showed that gonorrhea is less prevalent in American than in France and Germany.

CHICAGO LARYNGOLOGICAL AND OTOLOGICAL SOCIETY.

Stated Meeting, held March 7, 1905.

The President, William L. Ballenger, M.D., in the Chair.

Specimens of Cartilaginous Septum.—Dr. Wm. L. Ballenger exhibited specimens of cartilaginous septa which were removed with a knife he had recently devised. They were exhibited to show the shape in which they exist after removal. The method of removal by his knife does not in any way destroy the specimen, but preserves it in its entirety for study. The advantages of the knife, which he described, are that it shortens the operation, preserves the specimen, and obviates the mutilation that would be caused with punch forceps.

Stenosis of the Nares.—Dr. F. G. Stubbs described a plastic operation for stenosis of the nares. He also described an interesting case of tuberculosis of the larynx.

Some of the Newer Remedies.—Dr. Joseph C. Beck said he had looked up the literature on newer remedies, and was able to collect 11,064 such compounds as are recognized and used by the medical profession. The important question is to decide the value of these preparations.

Anesthesin.—In a case of painful ulcer of the septum, a local application of five per cent. ointment of this agent, twice daily, relieved the condition immediately. In a case of painful, specific ulceration of the tongue, the use of anesthesin bon bons was followed invariably by relief, so that the patient could eat a meal with comfort, but without them it was impossible. One case of earache, one of acute pharyngitis, after painful deglutition, one of hypersensitive rhinitis, and one of eczema, with intense itching of the external auditory canal, were relieved by anesthesin.

Argyrol.—He has been unable to see any appreciable effect of this remedy in the routine treatment of nasopharyngeal affections, and now resorts to the old, reliable solutions of nitrate of silver.

Adrenalin.—Much has been said against the use of this drug, owing to the secondary bleeding in operations. He has had his share of that trouble, still he would not do without the use of it. He referred to the peculiar action that this drug has had on two of his cases, namely, producing shock. In both there was no cocaine used, but symptoms very much like it appeared. He said others have had similar experiences from the use of adrenalin, and it is thought to be due to the ischemia of the nasal mucous membrane, with extension into the inner cranial cavity, causing marked ischemia of the meninges, and eventually the brain. This is the only explantion he has been able to find in literature. As to adrenalin itself, he prefers it to any preparation of the suprarenal extract, having tried the adrenalin adrin, adnephrin and epinephrin.

Aspirin.—He has found this remedy *par excellent* in all cases of grippe-like effects, associated principally with ear, nose and throat diseases. He has obtained immediate relief in doses of five or six grains. In several cases of acute frontal sinusitis, with marked pain, it acted admirably, though in somewhat larger doses—5 to 20 grains, three times per day.

Brometone.—The bromides are used by him considerably in ear cases in which tinnitus aurium is such an annoying symptom. These salts are not only very unpleasant to take, but disturb the stomach and produce bromism. His substitute for the salts or potash of soda or potash is brometone, in doses of 15 grains, three times a day, and he has found it to be satisfactory.

Camphorozol.—After more than two years' experience with this remedy in chronic suppurative ear diseases he says unhesitatingly that it is the best cleanser and deodorizer he has found.

Iodo-Nucleoids.—He has been able to come to some conclusions as to the value of this iodide preparation in comparison with the iodide of soda or potash, salts or iodipin. When this preparation was first put upon the market, he was told that it was superior to the other iodide preparations, in that the same results could be obtained in very much smaller doses without the production of iodism, disturbance of the stomach, acne, etc. He immediately selected three cases, and found it wanting, as he also found later, while he was using small doses, and when he reverted to the use of iodopin he was very much relieved at the immediate change of the condition of the patient. It soon followed that the small dose of iodo-nucleoids had to be increased the same as one does with the other iodides, and when he did so the change became apparent, that is, better results were obtained. After increasing the dosage of iodo-nucleoids he obtained results equally as good as when he used the old, reliable remedies, without any gastric disturbance or other symptoms of iodism, which is a distinct advantage.

Eucain Lactate.—In the few cases in which he has tried the 15 per cent. solution of eucain lactate applied to the nasal mucous membrane for any steady effort for operative procedures, he has found it wanting in every case. He was compelled to reanesthetize with cocaine before he could proceed with the operation.

Pollantine.—He has treated 12 cases of hay fever the past season with pollantine, but when the season was over he was very much disappointed as to the results. Only one case was completely relieved. Dr. Dunbar, on a recent visit to Chicago, stated that the antitoxin that was put on the market would act as a specific in those cases in which hay fever was due to the pollen of rye, which is frequently the cause of hay fever in Germany, and in the hay fever due to ragweed or goldenrod. The patient Dr. Beck speaks of as having been cured is a buyer of wheat and rye, and examines a great deal of grain. Almost all the hay fever cases stated that they did not have their hay fever as hard as usual, and universally declared that their rye symptoms were much lighter.

Thiosinamin.—Two years ago he read a paper before the Academy of Ophthalmology and Oto-Laryngology on the use of this drug in chronic otitis media, with a clinical report of 14 cases. He wished to supplement that report by 200 more cases with the observation that the drug acts in almost every

case in producing positive general symptoms, such as great fatigue, often nausea and loss of appetite. The results as to the immediate improvement of hearing and tinnitus are all slight. Grave changes may occur in the scar tissue or connective tissue in acting as a protective rather than as pathological, and grave lesions may occur. He mentions this drug because he knows that a good many men are using it indiscriminately, especially general practitioners, and three cases came to his notice with disastrous results. These three cases were reported in detail.

Ferrotropin.—Whenever he is called upon to prescribe an iron product in arsenic cases, associated with some ear, nose and throat affections, he usually does so by giving this pleasant iron preparation, which is easy to take and shows very early results, causing none of the disagreeable teeth symptoms. It does cause constipation, at times, owing to the chocolate it is mixed with.

Dr. E. Fletcher Ingals has used anesthesin in powder form, and while occasionally it has acted as a good anesthetic to open wounds, sometimes it has seemed absolutely worthless. Perhaps used in the form of an oily preparation it would be more satisfactory. He has obtained fairly good results from brometone in doses of not more than five grains, in such cases as the essayist has described. As to pollantine, he has only seen one patient in whom it seemed to do any good, and yet the ultimate result in this case was anything but satisfactory.

Dr. Norval H. Pierce has used anesthesin in a well-marked case of painful acute pharyngitis without any result. He has found that it produces some benefit in cases of itching of the external auditory canal. As to iodo-nucleoids, he thinks they produce as good results as the other iodides. He is quite convinced of that after some experience with them. He has been disappointed in the use of pollantine, in that he has not seen a case that has been cured, and inasmuch as the remedy is actually worth its weight in gold, he believes it is almost prohibitive in the large majority of cases of hay fever.

Dr. O. J. Stein has used the Dunbar preparations for hay fever. He mentioned 26 cases which he recently reported before the Chicago Medical Society. When used very early in the morning, before the patient leaves the house, or at the onset of the first sign or symptom of hay fever, every one of his cases, excepting three, had a positive amelioration of the symptoms that were coming on.

Sensory Nerve Endings at the Entrance to the Larynx, with special reference to the structure and function of the taste buds.—Dr. J. Gordon Wilson said that laryngologists are apt to regard the function of the larynx as essentially for voice production, and to overlook the fact that it has another function of great importance in the animal economy, a function compared with whose antiquity the voice is but a thing of yesterday, namely, the protection of the respiratory passage from irritants and during swallowing. The closure of the larynx is the one never-failing office of that organ; the arytenoid cartilages and their muscles are the only ever-present structures. "The original function of the vocal cords was to protect the air passages—speech being a superadded function." (Bland-Sutton.) In birds the function of the larynx is to guard the trachea; the vocal function is entirely removed from the larynx. In order to effect this closure, the vestibule of the larynx is extremely sensitive; from an anatomical point of view this fact was recognized by the number and variety of its sensory nerve endings. This is the more impressed on one when a comparison is made between a relative number and distribution of the endings on the lingual with those on the laryngeal surface of the epiglottis, the laryngeal far surpassing in variety and number the lingual. In addition, there is lodged in the vestibule of the larynx a sense of which few are aware—the sense of taste; a special sense whose presence is strongly upheld by some and equally strongly denied by others. All are agreed that over the upper part of the laryngeal mucous membrane taste buds are distributed, comparable to those of the tongue; but they still remain mysterious organs, about which little has been written, and about whose function we are still in the region of conjecture. The nerve trunks which carry fibers to the vestibule of the larynx are well known; but with regard to their central origins and their peripheral terminations much has yet to be done. The main nerve supply is the superior laryngeal. By this means there are conveyed fibers from three distinct sources, from the vagus, from the glosso-pharyngeus, and from the sympathetic. While the nerve branches are chiefly distributed on the side to which they belong, numerous fibers can be traced across the middle line, and after section of the superior laryngeal on one side, nerve degeneration is seen on the other side of the middle line. The main branches break up into subepithelial plexuses, from which arise the nerve endings. The nerve endings may be divided into two groups, subepithelial and epithelial. The subepithelial group presents both encapsulated and unencapsulated varieties. The encapsulated are chiefly modified Meissner corpuscles, nerve coils, and some varieties difficult to classify. The unencapsulated are chiefly tree-like endings, but Ruffini endings, and coils can also be seen. Of all these varieties the most numerous are the tree endings. The epithelial nerve endings are present in three varieties: (1) In ciliated epithelium; (2) in stratified epithelium; (3) in connection with the taste buds. In all these forms the varieties of endings are non-medullated and varicose. Drawings were shown of all these varieties of nerve endings. The taste buds lie in the stratified squamous epithelium. They are not concealed in furrows, as in the circumvallate papillæ of the tongue, but lie on an exposed surface. They are comparable in structure to those of the tongue. They are abundantly supplied by nerves; around the bud (perigemmal); within the bud (intragemmal), and at the base (subgemmal). The two principal hypotheses in regard to the function of these buds were discussed: (1) As to whether they were mere phylogenetic residues; this hypothesis resting on the decrease which is apparent from a comparative study of the taste buds in vertebrates, and on the restriction of area which occurs in man at various stages of development. (2) Whether they were reflex organs to intensify the closure of the larynx during the passage of food—a hypothesis which is based upon their abundant nerve supply, their localization, and their functional activity.

Bronchoscopy for the Removal of a Collar Button from the Lung.—Dr. E. Fletcher Ingals stated that on May 23, 1904, a Mr. C. D. E. was sent to him by Dr. F. W. Wilcox, of Minona, Ill. He was twenty-two years of age, had formerly weighed 142 pounds, but at the time he visited him only weighed 107½

pounds. Fourteen months previously he had accidentally drawn a collar button, presumably of vegetable ivory, into the air passages. He at once felt the sensation caused by it near the upper part of the sternum on a level with the second rib. Subsequently he had some soreness in the same place. Pneumonia developed on the left side within twenty-four hours and lasted for one month. All of the symptoms the patient had were described in detail. Fluoroscopic examination showed a dense shadow all over the left side, excepting a small area in the infraclavicular region, where the shadow was less marked. The patient was sent to the Presbyterian Hospital, a skiagraph made, but nothing could be seen, the lungs being so dense that even the ribs did not cast a shadow near the root of the lung. Three other negatives were taken with similar results. At five o'clock in the afternoon of May 23, assisted by several internes, the patient was given chloroform, and by upper bronchoscopy he attempted to remove the button. Although he had previously given the patient one-sixtieth of a grain of atropine, there was still abundant secretion in the trachea and a large amount of expectoration. Indeed, the patient coughed practically all of the time during the operation, which lasted from the time the chloroform started until he desisted, in all about two hours. During this time the patient spat large quantities of bloody pus, which was only kept out of the speaker's eyes by placing a pane of glass between his face and the bronchoscope. The pus rendered it very difficult to see, and compelled Dr. Ingals to swab out the passages almost continuously. After swabbing out the pus, he could only get two or three seconds before the patient would cough again. This seemed to result from the passage of the bronchoscope into an abscess. The patient took the chloroform so badly that they were not able to keep him profoundly under it, and Dr. Ingals frequently touched the bronchial tubes and the walls of the abscess cavity with a solution of cocaine, but the amount of pus was so great that it had little effect. In the examination of the left lung he was unable to see the numerous branches of the bronchi that are usually apparent, though he followed one of the branches far down until the bronchoscope was introduced its full length, 33 cm. below the incisor teeth. He searched carefully by inspection and palpation with a small hooklet, but was unable to locate the foreign body. There was considerable granulation tissue about the bifurcation of the trachea that for some time interfered seriously with the inspection, and one mass presented the appearance of a small polypus which nearly filled the bronchoscope. He had not yet been told of the peculiar choking spells, and therefore did not have in mind anything of a polypoid nature in that region. The mass that he saw he did not dare to remove, fearing that it might be connected with the bronchus in such a way that he would open through the tube and cause a pneumothorax. During the operation a part of the time he used for removing the pus a strip of one inch gauze, which was crowded down the bronchoscope with a large wire, the end of which had been flattened and forked, like that used in the ordinary uterine packer. This worked fairly well, but much of the time he used cotton swabs attached very securely to long brass carriers. At one time in swabbing out the pus the sliding ring for fastening the cotton in the carrier caught on the end of the bronchoscope and he had a little difficulty in disengaging it. As the swab was withdrawn he examined it and found the swab of cotton intact, but it seemed to him a little smaller than the other. He concluded that this was due simply to its having become saturated with the pus. Some time later he discovered at the end of the bronchoscope a white mass which looked like a large swab of cotton. He grasped this with the forceps and withdrew it, thinking that it must be a pledget of cotton that had been lost at the time the instrument caught. Not wishing to direct attention to the interne, who had been fastening the cotton on the carriers, he simply called attention to it by a look and threw it aside without examining it. This mass appeared fully twice as large as any of the pledgets of cotton after they had been saturated with pus, and considering the subsequent history he is now confident that it consisted of the collar button surrounded with necrosed lung tissue. During the operation the patient's pulse varied from 110 to 150, but all the time was fairly full and regular. Immediately afterward he appeared to be doing well. The next day there was no temperature and patient said he felt fine. Two days later, he was discharged and went to his home in the country. Two weeks later Dr. Ingals received a report that he was improving very rapidly, did not cough except a few times in the morning, had a ravenous appetite, and had gained 11 pounds. A month later another report stated that he was feeling fine and had gained 22 pounds. Two weeks later the patient came to see Dr. Ingals so changed in appearance that he did not know him. He coughed very little indeed, had no pain, no dyspnea on exertion, had a ravenous appetite, and weighed 130 pounds. An examination of the left chest showed only slight dulness from the second to the sixth rib, showing that the lung had cleared up greatly from the third rib to the sixth, flatness below the sixth rib, otherwise in front and laterally signs over the chest much as at the first examination, excepting that the apex of the heart was found about one and a quarter inches to the left of the mammary line. Posteriorly, the respiratory sounds were good over the left lung as low as the eighth rib, but feeble or absent below that level. The fluoroscope still showed a shadow over the left lung, but much less dense than formerly. In response to a letter, the patient called upon him a few days ago—February 20. He said that he had been working twelve hours a day since September, had no cough, no temperature, health fine and weighed 136 pounds. Examination of the chest showed very slight diminution of resonance over the left side as low as the sixth rib in front and laterally, and as low as the eighth posteriorly, with a vesicular murmur in the same region about two-thirds as intense as upon the right side. The lung was somewhat contracted and the heart drawn one and a half to two inches to the left of its normal position. No respiratory sounds could be heard below the eighth rib posteriorly, probably due to drawing upward of the lung and diaphragm. The normal superficial area of cardiac dulness had disappeared over the right half of the lower part of the sternum, on account of the increased activity of the right lung, and the dislocation of the heart to the left caused by retraction of the left lung. The patient felt perfectly well, and, considering the history, he feels justified in reporting the operation as a complete success, although he did not at the time examine critically the mass that seemed to have been causing the trouble.

BOOK REVIEWS.

The Urine and Feces in Diagnosis. By Otto Hensel, Ph.G., M.D., Bacteriologist, German Hospital, New York, and Richard Weil, A.M., M.D., Pathologist, German Hospital, New York, in collaboration with Smith Ely Jelliffe, M.D., Ph.D., Instructor in Pharmacy and Therapeutics, Columbia University; Visiting Neurologist, City Hospital, New York. Illustrated with 116 engravings and 10 colored plates. Lea Brothers and Company, Philadelphia and New York.

During the last decade a proper interpretation of the condition of the feces, and a more than ordinary routine in the examination of the urine have become necessities in diagnosis. In the urine the Bence-Jones albumose, melanin diacetic acid, indican, various bacteria, etc., have yielded valuable diagnostic suggestions. In addition, tests for the functional efficiency of the kidneys, cryoscopy, the estimation of the purin bases, etc., have become essential in the study of difficult metabolic or renal conditions. Most of these tests are simple enough, but, buried in a mass of literature, their easy application has not been recognized. So a new book on the urine finds its principal excuse for existence in these newer things, and our authors have dealt with them in a practical clinical manner that will appeal to the practitioner. We are sorry to see in this good book that the authors cling to the long-exploded idea that indicanuria belongs to hypochlorhydria, and never to hyperchlorhydria.

But it is to the second section, that on the feces, that we turn with most welcome. Until now textbooks in English have given very cursory treatment of the feces question, and the recent valuable work in this field has been closed to one not conversant with the German language. Yet there is a rapidly growing desire for more knowledge on the subject, and this would seem to be the "psychological moment" for a feces book in English. Taking as their guide the epoch-making work of Schmidt and Strasburger, and the bacteriological studies of Ford, the authors have succeeded in covering the field in a practical way, without too much condensation. The chapter headings, Macroscopic, Microscopic, Bacteriological and Chemical Examinations, Animal Parasites and Characteristic Pictures in Disease, give a very inadequate idea of the scope of the work; such subheadings as, the estimation of the duration of the passage, amount of feces, Conner's classification, Schmidt's test-meal, Nothnagel's bodies, and vegetable detritus, indicating more nearly its completeness. The whole subject is treated with considerable detail, but is kept within the range of the general practitioner. A fair criticism might be that Ford's method for the identification of bacteria has been given too much space. There are many illustrations, both urinary and fecal, mostly following recognized authorities.

Conservative Gynecology and Electro-Therapeutics. A Practical Treatise on the Diseases of Women and Their Treatment by Electricity. By G. Betton Massey, M.D., Attending Surgeon to the American Oncologic Hospital, Philadelphia. Fourth edition, revised, rewritten and greatly enlarged. F. A. Davis Company, Philadelphia.

The progress of electro-therapeutics has necessitated extensive rewriting to modernize this fourth edition. The author considers the remedial power of electricty to be due to an alteration in the molecular activity of the cells, which alteration can be changed at will. Electricity is of especial value in gynecology, in that the prevalent nutritional and functional affections of the uterus and adnexa readily yield to its influence. This agent furthermore offers a choice of treatment in a class of affections notoriously maltreated by methods involving sacrifice of organs. The writer states that it is impossible for the scientific mind to consider electricity, or anything else, a cure-all, and while the pages are largely devoted to a demonstration of the value of electricity in certain definite conditions, any simpler means of treatment that might prove effective are not to be neglected. The volume contains a complete, though brief, dissertation on Roentgen rays, by Dr. Herman Grad, of New York. The entire work is attractive, admirably illustrated and of decided practical value and scientific interest.

Gynecology, Medical and Surgical. Outline for Students and Practitioners. By Henry J. Garrigues, A.M., M.D., Gynecologist to St. Mark's Hospital, Consulting Obstetric Surgeon to the New York Maternity Hospital, Consulting Physician to the New York Mothers' Home and Maternity, Honorary Fellow of the American Gynecological Society, Honorary Fellow of the College of Physicians of the German Dispensary, Ex-President of the German Medical Society. With 343 Illustrations. Pp. 461. J. B. Lippincott Company, Philadelphia and London.

This book is designed for students and general practitioners who seek acquaintance with the essentials of modern gynecology. The first third of the book, called a General Division, includes a chapter on Puberty and Climacteric, describes methods of examination, etiology and treatment in general, and the significance of bloody and mucous discharges from the genitals. Reference is made to another work of the author's for a description of the anatomy and physiology of the pelvic organs. The Special Section comprises the remainder of the book, in which diseases of the genital organs, urethra and bladder are described. A special chapter is given diseases of the rectum and anus, and another to sterility. The etiology, pathology and treatment for the most part is based on the writer's personal ideas and experience, frequently to the exclusion of modern beliefs and methods. The surgical descriptions are brief, a few generally accepted operations are described in detail, a number given passing mention, and others of recognized merit receive no notice. The book is designed for beginners and as such has much to commend it, but it is lacking in the detail and scope demanded by a work of reference which is to be of value to the specialist.

A Hand-book of Nursing. Revised Edition, for Hospital and General Use. Published under the direction of the Connecticut Training-School for Nurses, connected with the General Hospital Society, New Haven, Connecticut. J. B. Lippincott Company, Philadelphia and London.

This volume is more than a revision of the edition published in 1878, it is a new book. The various subjects are presented clearly, intelligently and with pleasing brevity. The greater part of the book is devoted to medical and surgical nursing. A second part gives directions for Obstetrical Nursing, labeled "Monthly Nursing," and a third section includes Family Hygiene and Emergencies. The sanitary suggestions for colleges and schools for girls are excellent. The book is intended to supplement class-room instruction and is well adapted to subserve the purpose for which it was written.

The Medical Examination for Life Insurance, and its Associated Clinical Methods, with chapters on the insurance of substandard lives and accident insurance. By Charles Lyman Greene, M.D., Professor of the Theory and Practice of Medicine in the University of Minnesota, Ex-President of the National Association of Life Insurance Examining Surgeons, formerly Medical Director of Minnesota Mutual Life Insurance Company, etc. Second Edition, revised and enlarged, with 99 illustrations. P. Blakiston's Son & Co., Philadelphia.

The medical examiner for a life insurance company has for his object, not, as with the practising physician, the subsequent treatment of the patient, but solely the prognosis as to life; consequently he thinks nothing of the treatment, and places little credence on the statements of the examinee, who is financially interested. In addition to the diagnosis, therefore, he considers as very important, heredity, occupation, previous illness, the tendency of humans to deceive for the sake of gain, and other usually minor or irrelevant matters. The patient does not come to him complaining of palpitation, or frequent urination or constipation or cough, and the examiner must of himself determine whether the patient is now and promises to be in normal health or below normal. So none of the ordinary books on diagnosis or medicine fill the requirements of the life insurance examiner, and a work such as this of Greene is a practical boon.

After a short talk on the history of life insurance, the author proceeds to outline the problems of the examiner, the methods of physical examination, the significance of the urine findings, and how to examine sputum, urine, etc. A special chapter on the relation of heart disease and tuberculosis to insurance is well worth perusal. The author's dictum that "a thorough knowledge of the normal chest is all-important to the medical examiner" might well be brought home to every practitioner, whether an insurance examiner or not. Indeed, we find much in this book that may be read with profit and pleasure by every physician. The illustrations, especially those accompanying the chapters on physical diagnosis, are very good and very helpful.

International Clinics, a Quarterly of Illustrated Clinical Lectures and Especially Prepared Original Articles on Treatment, Medicine, Surgery, Neurology, etc., by Leading Members of the Medical Profession throughout the World. Edited by A. O. J. Kelly, A.M., M.B., of Philadelphia. Volume I, Fifteenth series, 1905. J. B. Lippincott Company, Philadelphia and London.

Though 110 pages of the present volume of the International Clinics are devoted to a review of the progress of medicine during 1904, a department, by the way, which, considering the number of reviews of medicine in one form or another that are now published, seems scarcely in place in the International Clinics, there are a number of very practical and interesting clinical lessons. New York clinicians are especially well represented. Dr. Morris Manges has an excellent article on Aortic Stenosis and Adherent Pericardium; Dr. James J. Walsh, a clinic in which he insists that the eye and the hand are more important in the diagnosis of heart disease than is the ear; Dr. Robert H. Dawbarn has a clinic on the Starvation of Malignant Growths, by depriving them of blood supply, with a discussion of the limits of application of this method of treatment; Dr. Russell A. Hibbs has a clinic on the treatment of knee-joint disease; Dr. Ernest Gallant, a clinic on the Treatment of Glenard's Disease. To those who are not familiar with it under this designation, it may be as well to say that this is floating kidney. One of the most interesting articles in this number is that by Dr. Charles K. Mills, of Philadelphia, on the legal consequences of drug addiction. There are besides the usual contributions from foreign sources.

Infantile Mortality and Infants' Milk Depots. By G. F. McCleary, M.D., D.P.H., Medical Officer of Health of the Metropolitan Borough of Battersea, London. P. S. King & Son, London, Eng.

Such a book as this may be of value in Britain, but concerned solely with the methods of regulating the distribution of milk to the poor of large cities, it can have no general demand in this country. Indeed, much of its material is taken from American books or records; and in our meetings the subject has been reviewed again and again by our leading pediatrists, so that our milk supplies to-day are better than in any other part of the world. There are twenty-six illustrations, mostly of depots in different European cities, but they add nothing to the text, except perhaps one or two of the Battersea station in England. We would recommend the author to visit our own Walker-Gordon, Fairfield or Briarcliff dairies.

Abdominal Pain, Its Causes and Clinical Significance. By A. Ernest Maylard, M.B., B.S.(Lond.), Surgeon to the Victoria Infirmary, Glasgow; Late Examiner in Surgery to the University of Glasgow, and Victoria University, Manchester; formerly Demonstrator of Anatomy, Guy's Hospital, London, and Ex-President of the Glasgow Pathological and Clinical Society; Author of a Treatise on the Surgery of the Alimentary Canal. P. Blakiston's Son & Co., Philadelphia.

For a long time the Germans have given tireless study to the symptom pain, which becomes manifest in almost all pathological conditions, and Dr. Maylard, realizing the fatal ignorance oftentimes displayed on the part of the general practitioner relative to abdominal pain has attempted to present as clear an analysis of this subject as present observations permit.

As he truthfully observes: "The old idea of a 'stomach-ache,' with the continual administration of an aperient to clear out the canal, or a sedative to soothe the patient's suffering, has given place to the more watchful and investigative attitude of seeking to ascertain the causes of the 'ache.'"

Pain *per se*, its nervous origin and correlation, splanchnic and somatic, is first taken up, following which the symptom as it relates to the various abdominal viscera is described from a standpoint both of character and etiology. A tabulated analysis of the regional manifestation of pain and its multitudinous probable causes has been made, which is not only a convenient résumé, but will prove helpful in arriving at an earlier diagnosis of obscure abdominal processes.

Why the author, after presenting an entirely useful treatise on the subject given, should wander off into an abbreviated "touch and go" kind of dissertation upon abdominal surgery is not exactly clear. The information which he intends it to convey can be found to much better advantage elsewhere, and its incorporation here detracts from the strength of the book.

A Text-Book of the Practice of Medicine for Students and Practitioners. By Hobart Amory Hare, M.D., B.Sc., Professor of Therapeutics in the Jefferson Medical College, of Philadelphia, etc. Lea Brothers & Company, New York and Philadelphia.

There have been many Practices of Medicine written in America, and many more will follow. Each in its turn, from Thacher's to the present time, has enjoyed a popularity commensurate with its usefulness.

The vast majority of the more ambitious works have reflected the experiences of clinicians—at least so far as works in the United States are concerned—and have mirrored the prevailing opinions of the times with greater or less accuracy and wealth of bibliographic research. A few only have been conceived with regard to the philosophy of disease, seen in its wider aspects—at the present time we know of but one such of native production.

Hare's work belongs to the more conventional and usable type. It is eminently descriptive and practical, particularly the latter, and offers much in contrast with the modern unfortunate tendency in more philosophical works, in the way of the treatment of disease.

Hare believes, and we follow him, that for the vast majority of students of medicine, and practitioners as well, the promulgation of therapeutic principles is not enough to guide one in the vast labyrinth of sickness; what is wanted as well are specific details—and these he provides with richness of illustration and from the wealth of a vast experience. The philosophies suffer, but this book is not meant for the specialist.

Further, the present volume offers to the reader a remarkable wealth of statistical material, bearing on incidence, mortality, morbidity, prognosis, etc., which is of great service in obtaining a general oversight of the disease in question. The statistical material is not utilized to its full value by a thoughtful presentation, but it can be found nowhere else in as rich profusion, and the individual reader should be able to utilize it according to his own needs.

Another excellent feature of the work is its highly descriptive and clinical character. It is almost monographic in most of the more important chapters in the inclusion of clinical types, and although some omissions are evident, they may truly be said to be unimportant.

From one point of view the reviewer cannot but help feel that the work could be improved, and that concerns the purely theoretical position of the grouping of the subjects. Thus, if the author attributes value to the group of "diseases due to animal parasites," why is malaria not included? or if his first group of "infectious diseases" is meant to denote a classification in a true sense, why are not the animal parasitic diseases, trypanosomiasis, and others, not infectious?

We freely admit, however, that the matter of grouping is of little value, particularly from the standpoint of the student, and does not in any sense affect the quality of the material presented.

Although the book is over 1,000 pages, and undoubtedly the author feels that is too compressed at the present time to do him full justice, we have been looking for the "Medical Practice" that would adequately outline the diseases of the mind. Why they should be neglected is, we believe, unfortunate, particularly when mental diseases are so common and so important.

It might seem, and it is probably true, that a Practice of Medicine that can faithfully reflect the modern aspect of the labor of the workers in medicine the world over cannot be written in 1,000 pages by any one man—the task is enormous—yet we can consistently say that Dr. Hare has undoubtedly accomplished a great work in this new Practice. The present generation demands a full grown and mature volume, and Hare's "Practice" will stand the test of true merit most conspicuously.

BOOKS RECEIVED.

Diet and Nutrition. By Dr. M. Einhorn. 12mo, 64 pages. Wm. Wood & Co., New York.

Chirurgie du Systeme Nerveux. By Dr. G. Marion. 8vo, 531 pages. Illustrated. G. Steinheil, Paris.

The Eye, Mind, Energy and Matter. By Dr. C. Prentice. 12mo, 131 pages. Published by the author.

The Intestinal Catarrhs. By Dr. E. Blake. 8vo, 356 pages. Illustrated. W. T. Keener & Co., Chicago.

Abdominal Pain. By Dr. A. E. Mayland. 8vo, 304 pages. Illustrated. P. Blakiston's Son & Co., Philadelphia.

Johns Hopkins Hospital Reports. Volume XII. 8vo, 548 pages. Illustrated. Johns Hopkins Press, Baltimore.

Diseases of the Heart. By Dr. E. H. Colbeck. Second edition. 8vo, 350 pages. Illustrated. W. T. Keener & Co., Chicago.

Atonia Gastrica. By Drs. A. Rose and R. C. Kemp. 12mo, 203 pages. Illustrated. Funk & Wagnalls, New York and London.

Diseases of the Nervous System. By Dr. L. Harrison Mettler. 8vo, 989 pages. Illustrated. The Cleveland Press, Chicago.

Infantile Mortality and Infants' Milk Depots. By Dr. G. F. MacCleary. 12mo, 132 pages. Illustrated. P. S. King & Co., London.

Annual Report of the Commissioner of Education for the Year 1903. 8vo. Volumes I and II. Illustrated Government Printing Office, Washington.

Appendicitis, its Diagnosis and Treatment. By Dr. J. B. Deaver. Third edition. 8vo, 492 pages. Illustrated. P. Blakiston's Son & Co., Philadelphia.

Essentials of the Practice of Medicine. By Dr. W. R. Williams. 12mo, 460 pages. W. B. Saunders & Company, New York, Philadelphia and London.

Operative Surgery. Volume II. By Dr. J. D. Bryant. Fourth edition. 8vo, 1,559 pages. Illustrated. D. Appleton & Company, New York and London.

Diseases of the Eye and Ear. By Drs. A. N. Alling and O. A. Griffin, 12mo, 252 pages. Illustrated. Lea Brothers & Company, Philadelphia and New York.

Vermiform Appendix and its Diseases. By Drs. H. A. Kelly and E. Hurdon. 8vo, 827 pages. Illustrated. W. B. Saunders & Company, New York, Philadelphia and London.

Detection of Poisons and Strong Drink. By Dr. W. Autenrieth. Translated by Dr. W. H. Warren. 8vo, 22 pages. Illustrated. P. Blakiston's Son & Co., Philadelphia.

Historical Relations of Medicine and Surgery to the End of the Sixteenth Century. By Dr. T. C. Allbutt. 12mo, 125 pages. The Macmillan Co., New York and London.

American Year-Book of Medicine and Surgery. 1905. 8vo, 696 pages. Illustrated. Medicine. 702 pages. Illustrated. W. B. Saunders & Company, New York, Philadelphia and London.

Progressive Medicine. Volume I, March, 1905. Edited by Dr. H. A. Hare. 8vo, 298 pages. Lea Brothers & Co., New York and Philadelphia.

Bacteriology in Surgical Technic for Nurses. By Dr. E. M. A. Stoney. Second edition revised by F. R. Griffith. 8vo, 278 pages. Illustrated. W. B. Saunders & Company, New York, Philadelphia and London.

THE MEDICAL NEWS.

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ORIGINAL ARTICLES.

SPHYGMOGRAMS FROM TWO CASES OF BRADYCARDIA.

BY GEORGE DOCK, M.D.,
OF ANN ARBOR, MICH.

COMPARATIVELY few tracings have been published from cases of bradycardia. Even reports of such cases are not always convincing, because pains are not always taken to show that the heart beat is really infrequent. In a very recent report the pulse suddenly dropped to about half its former rate. As the heart beat is not described, nor the sounds mentioned, there is reason for thinking this was a case of alternating pulse (postoperative), a very different condition from bradycardia. Besides noting the rate of the heart beat, and the character of the sounds, it is essential to take tracings of the pulse, and also simultaneous tracings of the apex beat as well as the venous pulse. In the cases now reported it was not possible to get cardiograms or tracings of the venous pulse, but the sphygmograms of the radials seem of sufficient interest to excuse this and other unavoidable imperfections.

Case I.—Pulse about 30 for six years; in the last two years attacks of loss of consciousness; sudden death. C., farmer, aged sixty-three years. Health good up to four years ago, when there was an attack resembling influenza. At this time the pulse was found to be 28; the skin was cold. Various remedies were used but the pulse never exceeded 30. The general health became fairly good, but shortness of breath remained. There was impotence for a time. Convulsions were not observed at any time.

I saw the patient once only, June 24, 1902, with his physician, Dr. James Hueston, of Ypsilanti. He was a man of large frame. The heart was slightly enlarged, the apex beat strong; there was a diastolic murmur over the midsternum. The peripheral arteries were only moderately sclerotic. Radial pulse of medium size and fulness; wave well sustained but diastole long; 28; regular, following the heart beats with perfect regularity. There were no unusual pulsations in the neck. No capillary pulse. The other organs and the urine were negative. I made a diagnosis of probable Stokes-Adams' disease (the paroxysmal features of which, however, were not explained to the patient) and advised a course of atropine, partly in order to determine its effect on the pulse rate. This was given in full doses by Dr. Hueston, who never, however, found the pulse above 32.

Soon after my examination the patient began to have attacks of loss of consciousness, falling suddenly at long intervals. The unconsciousness lasted three to four minutes. Some attacks followed exertion, others not. The final attack came on while picking fruit. The man fell down and was found almost at once to be dead. I often heard of him from Dr. Hueston in the meantime and he made many promises to come for examination, but never did, and as he lived some distance in the country I never found it possible to see him. I was fortunate enough to make an autopsy with Dr. Hueston. There was moderate arteriosclerosis, with very slight corresponding changes in the liver, kidneys and spleen. The kidneys were granular but the microscopical alterations were relatively slight, with the exception of some minute old infarcts and recent hemorrhages. The vessels of the brain were not unusually sclerotic for a man of his age. The cerebellum, pons and medulla showed no macroscopic changes. Sections of the medulla at the level of the vagus center show a slight diffuse increase of neuroglia, but the vessels and the nerve cells are not perceptibly altered.

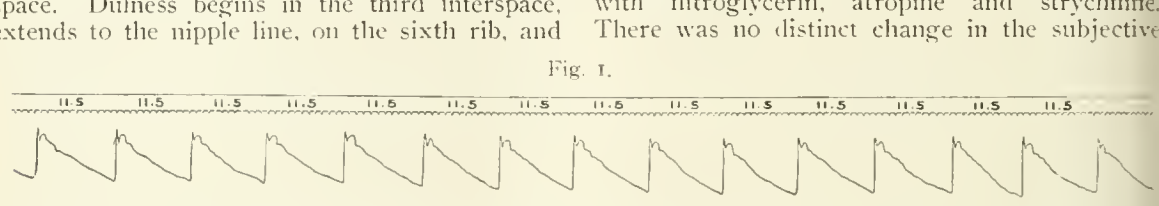
The heart, weighing 500 grams, is slightly hypertrophied, shows only mild fibroid changes in the walls. The left auricle is thickened and fibroid, the right auricle shows slight separation of the muscular bundles. The auricular appendages are not affected. Microscopically the muscle fibers are well preserved, with no fragmentation. Both auriculoventricular orifices are slightly dilated. The aortic valves are slightly thickened and retracted. The aorta at the level of the coronaries is moderately sclerotic, but the coronaries from their orifices down show very little sclerosis without nodular thickening, retraction or dilatation. The sphygmogram (see Fig. 1) shows a shallow notch below the summit due to a slight exaggeration of the ventricular systolic wave, but the dicrotic wave is often very low. The chief feature is the slow rate, equal to 26.5 beats per minute, with a great regularity in the duration of each pulsation (11.5 fifths of a second), as well as in the height of the stroke. Several long tracings were taken, and all show the same details.

Case II.—Dyspnea, pain, palpitation of the heart; bradycardia (15 to 30) and arhythmia. A. D., farmer, aged sixty years, seen with Dr. J. L. Ramsdell, of Albion, March 19, 1904. The patient was strong and muscular, and never ill until about one year before. He then began to have dyspnea on exertion, very slight pain, palpitation of the heart; no anginal symptoms. Dr. Ramsdell saw the patient four days before my

visit and found the pulse 25. He then gave strychnine. A few hours before I saw the patient Dr. Ramsdell found a rate of 15.

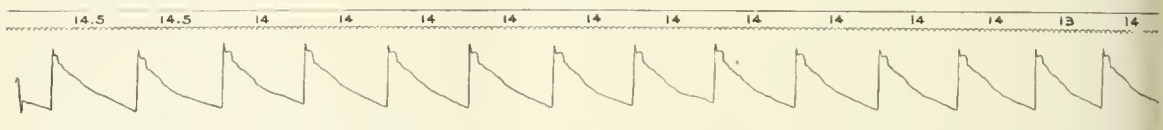
I found the patient spare, well preserved, but arteriosclerotic looking. I noted: "The apex beat is in the nipple line, in the fifth intercostal space. Dulness begins in the third interspace, extends to the nipple line, on the sixth rib, and to the left edge of the sternum. At the apex the sounds are weak and there is a short systolic murmur conducted about one inch in various directions. This is followed by a soft diastolic murmur. The action is irregular. Sometimes the beat is very slow but regular, sometimes one or two beats follow a stronger one, but without regularity. The radial artery is of moderate size, the vessel tortuous, irregularly thickened; the pulse of moderate size, irregular, 25 to the minute. Usually there is a long pause, sometimes the pulse is followed by two weaker beats in rapid succession corresponding exactly to the heart sounds. There is no venous pulse. Blood pressure (Riva-Rocci after Cook, 5 cm. band), 185. Extremities warm, no edema. Has had tendency to cold skin all winter. The urine is negative. There are no brain or eye symptoms."

Fig. 1.



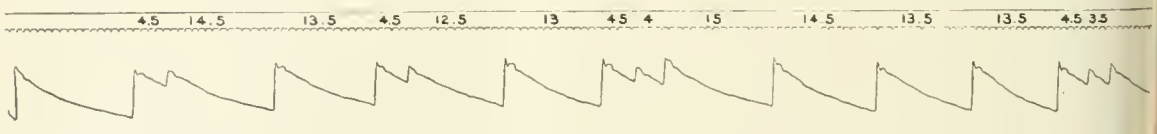
The time shown in one-fifth seconds; the figures above the tracings indicate the length of the pulse in this same fraction.

Fig. 2.



The time shown in one-fifth seconds; the figures above the tracings indicate the length of the pulse in this same fraction.

Fig. 3.



The time shown in one-fifth seconds; the figures above the tracings indicate the length of the pulse in this same fraction.

The tracings taken at this time illustrate the cardiac and pulse rhythm. Usually there is slow pulse, with intervals of about three seconds. Without obvious cause this changes to a very irregular pulse, or sometimes a regular irregularity, with intervals of from less than one second to five seconds or more. Both of these are shown in tracings, Figs. 2, 3, and 3*a*. The waves with short intervals are always weaker than the long ones. Sometimes two waves follow a long pause and then the second pause is shorter than the first, but followed by a higher wave.

I made a diagnosis of arteriosclerosis with myocardial degeneration, and advised treatment with nitroglycerin, atropine and strychnine. There was no distinct change in the subjective and general condition after that, and no notable increase of the pulse rate.

April 9, Drs. R. S. Morris and C. E. Edmunds kindly saw the patient for me and made some observations. The general condition was about the same as before. "The apex beat 1½ to 2 cm. wide in the fourth intercostal space outside the nipple line. Dulness from the third interspace to the nipple line and the left edge of the sternum. The first sound at the apex weak, accompanied by a soft short murmur, transmitted about one inch upward and to the left, also toward the base. The second sound at the apex is strong and clear. The diastolic pause is very long. At the second right interspace the sounds are almost inaudible, also at the level of the third costal cartilage over the sternum. In this area the systolic murmur can also be heard, and followed up to the right sternoclavicular articulation, but not to the left.

"The peripheral arteries show marked sclerosis. Radial pulse 24 at first, later 30, but regular. The blood pressure (Cook), 176; Erlanger, systolic 162, diastolic, 105 to 110. One mg. of atropine was injected but no change of the pulse rate followed. The patient had taken 1/150

grain atropine t.i.d. The pupils were wide in the beginning of the examination and did not become larger in the subsequent forty-five minutes of observation."

Tracings taken at this time show (Fig. 4) a pulse of almost perfect regularity beating at the rate of 24.4 per minute. The patient died a few weeks after this, without any distinct change in his pulse conditions. An autopsy was not permitted.

These two cases have a relationship chiefly in the slow pulse. I think the first one should be classed among cases of Stokes-Adams' disease, though not a typical case. The slight retraction of the aortic valves does not seem to have been of much importance.

In the second case there were no Stokes-Adams symptoms, though these might have developed if the patient had lived longer. In this case the peripheral arteriosclerosis was more marked than that in any part of the body of Case I, but was no greater than occurs in many cases that never have bradycardia, Stokes-Adams symptoms or other unusual circulatory changes.

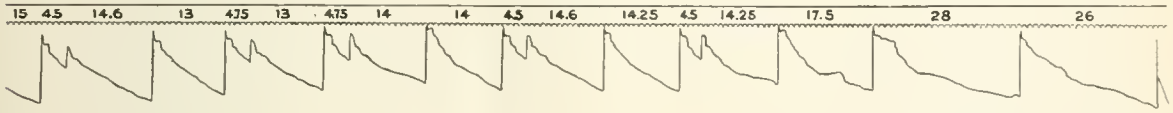
Both are cases of true bradycardia in that the heart beat had the same rate as the very infrequent pulse. Both failed to react to atropine in full doses. This makes unlikely a principal participation of the vagus center or trunk, which is also rendered unlikely in Case I by the very long duration.

Aside from a vagus cause, the bradycardia might arise from: Diminished automatic excitability; lowering of conductivity or lessened contractility, or a combination of these.

Inasmuch as digitalis sometimes causes slow pulse by a toxic action on the heart muscle, I should say that in neither case was it given in such a dose as to produce an effect.

The regularity of the wave, the absence of signs of intermission in the tracing and of venous or cardiac signs on inspection and auscultation make it probable the slow pulse in Case I was due to lowered automatic excitability. The same may be said the regular curves in Case II. The irregular part in the latter case offers some interesting suggestions. There is a marked indication of "Luciani's periods" in the small waves, a disturbance of rhythm that occurs in certain disturbances of stimulus conduction in the heart muscle and capable of artificial production by asphyxia. In the patient, however, notwithstanding the great disturbance of the pulse at that time, there were no evidences of asphyxia, even with intervals of 3 to 5½ seconds between the heart beats. This condition, however, probably did not continue very long.

Fig. 3*a*.



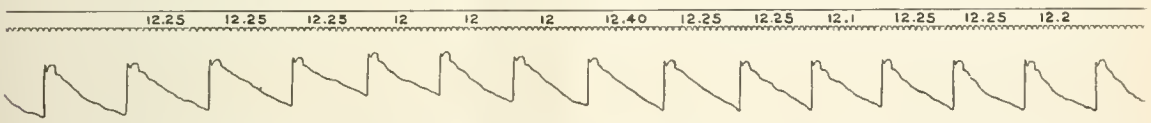
The time shown in one-fifth seconds; the figures above the tracings indicate the length of the pulse in this same fraction.

Another possible explanation of the arhythmia is that the long waves are due to intermission, the shorter ones showing the true rhythm; but the duration of the waves, as shown by the time marker, makes this unlikely, while the clinical evidence, again, was opposed to this view. The two long waves in Fig 3*a* suggest missed beats, but in ausculting at other times with waves of five seconds' duration I could detect no marked contractions.

The same sort of evidence negatives the supposition of "heart block," which might produce a tracing not unlike Fig. 3. A disturbance of contractility, or a negative inotropic action, might be supposed to be at work in both cases, but our knowledge of such disturbances in the human heart is too fragmentary at present to apply it to this case. Further experimental work and more thorough clinical investigation are much needed in this most interesting branch of cardial pathology.[1]

I should add that my friend and former colleague, Dr. A. R. Cushny, who has studied the tracings, also concludes that the chief element was diminution of automatic excitability in both cases.

Fig. 4.



The time shown in one-fifth seconds; the figures above the tracings indicate the length of the pulse in this same fraction.

1 See especially "Arhthymia of the Heart, a Physiological and Clinical Study," by Dr. K. F. Wenckebach, translated by Thos. Snowball, M.A., M.B., Edinburgh and London, 1904.

ON THE IMPOSSIBILITY OF DIFFERENTIATING SO-CALLED "PARATYPHOID" FROM TYPHOID FEVER EXCEPT BY A BACTERIOLOGICAL EXAMINATION OF THE BLOOD.*

BY WARREN COLEMAN, M.D.,
OF NEW YORK.

If cases of infection by intermediate members of the typhoid-colon group of bacilli, when pursuing a typhoidal course, cannot be distinguished from typhoid fever without the aid of laboratory methods, the introduction of the term "paratyphoid fever" is clearly unjustifiable. I shall endeavor to prove that so-called paratyphoid and typhoid fever are identical clinically and that they can be differentiated only by the recovery of the bacillus concerned from the blood.

Schottmüller introduced the term paratyphoid fever in 1901. In 1902, in a paper entitled "Types of Infection Produced in Man by Intermediate Members of the Typhoid-Colon Group of Bacilli,"[1] I took the ground "that paratyphoid infections do not constitute a clinical entity; that there is as great diversity among the different types of typhoid fever, as between typhoid fever and paratyphoid infections; that the idea of the specificity of typhoid fever should be abandoned, and that the scope of its etiology should be broadened to include *Bacillus alkaligenes fæcalis, Bacillus typhosus, Bacillus paratyphosus* and certain members of the paracolon group." At the time this paper was written only about fifty cases of paratyphoid infection had been published. As the number of cases has increased and the subject has become better known, I have not only seen no reason to modify the above view, but have become more thoroughly convinced of its correctness.

A brief review of the bacilli constituting the typhoid-colon group will enable me to explain my conception of the subject more clearly. I shall consider only the bacilli pathogenic for man. Petruschky's *Bacillus alkaligenes fæcalis,* which lies just without the group on the typhoid side, must be included, because it has produced typhoidal symptoms. The other members of the group are *Bacillus typhosus*, the paratyphoid bacilli which are not identical either in biological or serum reactions, the paracolon bacilli, which likewise differ among themselves, *Bacillus enteritidis,* consisting of different strains, *Bacillus psittacosis* and *Bacillus coli communis.*

All of these bacilli have produced diseases characterized by typhoidal symptoms, with the possible exception of *Bacillus coli communis.* I grant at once that infections by these different organisms are distinct diseases *from the bacteriologist's standpoint.* But bacteriological are not necessarily clinical entities. Pneumonia and infective endocarditis are examples. Further, if clinical distinctions are to be made on the basis of biological differences in organisms, we must be consistent and give a name to each subvariety of infection. It needs but a moment's reflection to see where this policy would lead us in the typhoid-colon infections.

The pathological anatomy of the cases of infection by the intermediates which have come to autopsy has differed from that of typhoid fever. Peyer's patches have escaped, though four of six cases showed intestinal ulcers. What the ultimate significance of these facts will be, I think no one can tell. But since the number of cases studied is so small, it will clearly be wiser not to draw conclusions from them.

The Clinical Diagnosis of Typhoid Fever and Paratyphoid Infections: Twenty-one-Day Cases.—A positive clinical diagnosis of even a typical case of typhoid fever is beset with difficulty and is generally made after the fact. No case is typical, until the disease has finished its course. More than once has general miliary tuberculosis been mistaken for typhoid fever. (I do not, of course, refer to the probable diagnosis of the usual case. We are dealing with *exact,* not probable, diagnosis.)

Some of the reported cases of paratyphoid infection have been described as typical attacks of typhoid fever. Some have been mild, some severe. Among them they have presented all the symptoms and many of the complications of typhoid fever. There has been no symptom of typhoid fever constantly absent. There has been no symptom constantly present that we may not get in typhoid fever. All that the most ardent advocates of the use of the term "paratyphoid fever" claim for it as a distinct disease is, that the cases are milder, that they are of shorter duration (I shall consider the cases of less than twenty-one days' duration later), that the mortality is lower, and that some complications, *e.g.*, myositis and purulent arthritis, are more frequent. But it must be borne in mind that these conclusions have been drawn from less than two hundred cases and that the majority of the cases reported as infections by an intermediate have not been subjected to the only final diagnostic criterion—the recovery of the bacillus from the blood. But even admitting that all the cases reported as such were infections by intermediates, I claim that one would find as many statistical discrepancies among an equal number of cases of typhoid fever taken at random.

My personal experience is limited to one case. But that case passed for a typical, mild case of typhoid fever, until Buxton found that the bacillus we had isolated from the blood, gave the cultural reactions of paratyphoid bacilli.

Short-Duration Cases.—If the *final* diagnosis of a typical case of typhoid fever is difficult, what shall be said of the diagnosis of the irregular cases? Witness the former elaborate discussions on "simple continued fever." I have no hesitation in saying that I believe the majority of these cases to have been caused by some member of the typhoid-colon group of bacilli. The time has

* Read at a meeting of the Section on Medicine, New York Academy of Medicine, April 18, 1905.

even come when we must take into consideration the possibility of the occurrence of primary systemic infection by the colon bacillus itself. The literature upon the subject is slowly accumulating. Buxton and I have had one case which did not give the typhoid serum-reaction, and from the patient's blood we isolated *Bacillus coli communis* in pure culture.

The argument that the cases of so-called "paratyphoid fever" have been of shorter duration than typhoid will not serve to distinguish them clinically. During the past summer I have had ample proof of this at Bellevue Hospital. I do not recall having seen in any one season so many cases of short duration, and otherwise irregular, typhoid. The diagnosis in some of them was placed beyond dispute by the recovery of typical typhoid bacilli from their blood. One lasted ten days, another fourteen, and their symptoms corresponded perfectly with those of some of the reported cases of "paratyphoid fever." These cases show, then, that short duration is not distinctive of infections by the intermediates.

Serum Reaction.—By way of differentiation, certain authors have attributed much diagnostic significance to absence of the serum reaction against *Bacillus typhosus*. Even positive diagnoses of paratyphoid infections have been made upon such negative evidence. But a negative serum reaction in a case of suspected infection by some member of the typhoid-colon group means one thing only—that the agglutinins have not developed, or at least not in sufficient quantity to give a reaction. Variability in the time of appearance of the reaction is well known. I have seen it delayed to the seventy-first day of an irregular case.

Even a positive reaction with a partyphoid bacillus at higher dilution than with *Bacillus typhosus* does not prove that this bacillus is the cause of the infection. Grünbaum and Jolly [2] have recently (January) published a paper on the inconclusive nature of the results of the agglutination reaction in cases of typhoid fever. They tested the reactions of the blood of positive typhoid cases (proven by bacteriological examinations of the blood) against paratyphoid bacilli and obtained agglutination in 70 per cent. of the cases examined. In some cases the paratyphoid bacilli were agglutinated at higher dilution than typhoid bacilli. In 55 per cent. of the cases a colon bacillus reacted with the sera, and *Bacillus enteritidis* (Gärtner) in 22 per cent.

This only confirms what Durham demonstrated some years ago that the reactions of the typhoid-colon group are special, but not specific. The various members of the group give a group reaction, that is, any immune serum may react with several or more members of the group at low dilutions (frequently at 1 : 10 to 1 : 40, more rarely at 1 : 100).

It is, therefore, necessary to exercise caution in drawing conclusions even from positive reactions. If a serum reacts at 1 : 1,000 with a paratyphoid bacillus and at 1 : 100 or less with *Bacillus typhosus*, the case is probably, but not certainly, one of paratyphoid infection. However, a group reaction at 1 : 20 is sufficient for practical purposes. Prophylaxis and treatment are the same in any typhoidal case of infection by any member of the group. And it cannot be too strongly urged that the diagnosis of paratyphoid infections concerns the bacteriologist more than the practising physician.

A successful bacteriological examination of the blood, with proper identification of the bacillus recovered, becomes then the only final criterion of diagnosis in the differentiation of infections by various members of the typhoid-colon group of bacilli. (This statement, of course, does not refer to cases of infection by Gärtner's *Bacillus enteritidis*, except when they take the typhoid form.)

In further substantiation of my position I would call attention to the fact that the term "paratyphoid fever" has been discredited in Germany, Belgium and Russia.

Conclusions.—(1) That paratyphoid infections cannot be distinguished from typhoid fever except by the recovery from the blood of the bacillus concerned and its proper indentification. (2) That the present state of our knowledge makes it advisable to consider typhoid fever clinically as a disease which may be caused by several members of the typhoid-colon group of baccilli. (3) That the term "paratyphoid fever" is not only unnecessary but misleading.

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EXPERIMENTS WITH RADIUM EMANATIONS.[1]

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At the suggestion of Mr. Hugo Lieber, a properly constructed tube, the interior of which was coated with radium, so constructed that the emanations could be made use of experimentally, was placed in my hands for the purpose of experimentation along the lines covered by my work in the field of ear, nose and throat diseases, with a desire that a report should be made at the March meeting of the Medical Society of the County of New York. A somewhat careful research of the literature upon the subject brings to light the fact that the emanation from radium was described Owens,[2] also by Dorn.[3] Madam Curie[4] mentions that "Radium is a substance which accompanies the barium obtained from pitchblende; it resembles the barium in its reaction, and is separated from it by differences

1 Read at the Medical Society of the County of New York, March 27, 1905.
2 Philosophical Magazine and Journal of Sciences, London, 360; October, 1899.
3 Abh. der Naturforsch. Ges. für Halle a. S., 1900.
4 Recherches sur les substances radio-actives, Paris, 1904.

of solubility of the chlorides in water, in dilute alcohol or in water acidified with hydrochloric acid."

Emanations.—"The gases present in an enclosure containing a solid salt of radium are radio-active. This radio-activity persists when the gas is drawn off with a tube and collected in a test tube."[5]

Rutherford says: "Emanations produced by radium, thorium and actinium, but not by uranium or polonium, are the power of continuously emitting into the surrounding space a material emanation, which has all the properties of a radio-active gas. Emanations are material and exist in a gaseous state, possess the property of chemical inertness and in this respect resemble the gases of the argon family."

Beck[6] mentions the emanations from radium without giving specific data. Several writers have made mention of the emanations without clearly defining any clinical methods for their employment, and on the other hand not giving any exact report of cases treated. Dr. Piffard has already given his views on the properties of radium *in extenso* and I have thought best to make use of the time allowed, in presenting a report of some experiments with the emanations.

It seemed to me that before commencing experiments upon patients it might be wise to determine whether the emanations possessed any bactericidal power. Accordingly a pure culture of streptococcus was exposed for a period of two minutes several times during the day, and it was found that the bacteria did not lose their activity. Inoculations from the exposed culture grew in new media with the usual speed, and the culture itself showed no effect from the action of the emanations.

A culture made from a pure culture was exposed immediately after inoculation for the same time, the exposure to the emanations taking place before the newly inoculated media was placed in the incubator, and the culture prospered in the usual way. A mixed culture taken from the ear discharge was in no way affected by exposure to the emanations. It was not thought wise to continue experiments along these lines, as the results did not seem to warrant any further effort.

In view of the statements by various observers and also by the discoverers of the emanations from radium, viz., that the activity of the air in the enclosed tube rapidly loses its radio-active force when fresh currents of air have access to the tube, it was always so applied to the part to be treated that the first current (naturally carrying the greatest amount of radio-active substance) fully bathed the part. An exposure of two minutes was the time usually employed. From the discoverer's standpoint it requires some time for the emanations to again form in the tube and saturate the contained air, so the treatment was generally repeated daily.

5 Quoted from original article of Madame Curie.
6 Laryngoscope, December, 1904, page 879.

Case I.—December 30, 1904, A. J., aged thirty-three years. In childhood had all the exanthemata, but without ear complications. At the age of nineteen contracted syphilis and was under treatment for three years and pronounced cured. Four years ago had an attack of laryngitis and could not use voice for five months. Three years ago began to have discharge from the right ear, which came without pain. Discharge had occasionally ceased for a few weeks, but was fairly continuous. Two months ago while cleansing the ear the patient noticed a growth in the canal and on one or two occasions slight rubbing had caused it to bleed.

Diagnosis.—Chronic suppurative otitis media with a large mass of granulation or polypoid tissue, which filled the entire external auditory canal. The hearing, of course, was practically *nil*. The growth was fairly well organized, although bleeding could easily be caused by rubbing. After cleaning the canal thoroughly the growth was exposed to the radium emanations for two minutes. Subsequent to this the growth seemed to be somewhat drier. The treatment was carried out daily, the effect each time being that at first the growth would appear red and after a few seconds it became pale in appearance. January 4, 1905, the growth seemed to be somewhat smaller in size. The treatment was continued daily for about thirty days and was finally discontinued because the growth did not decline in size or change materially in appearance, except for the moment.

Case II.—S. M., aged forty-eight years. For four years has complained of excessive discharge from both sides of the nose, with obstructed nasal respiration and pain in the head. During three months previous to the first application of the emanations her nasal cavities had been completely cleared of polypoid degeneration and the anterior ethmoidal cells had been thoroughly curetted. This brought about much relief to her pain, difficult breathing and quantity of discharge. At the present time there is some discharge evidently coming from the ethmoid cells and probably the sphenoidal cells. There has been complete loss of the sense of smell. The emanations were first applied December 30, 1904, after cleaning the nares. The tip was carried well up into the ethmoid region, the length of time being about two minutes. There seemed to be some drying of the tissues following this application. These applications were made daily, and on January 4 the patient said the pains in her head were better. From this time until January 14 the quantity of discharge varied, some days being considerable, on other days very little. The patient thinks that following the treatment there is some relief from the stuffy feeling in the head. From January 14 to February 13 the treatment with the radium emanations was continued in about the same manner as before the applications were made.

Case III.—J. M., aged thirty-six years. Had

running in the left ear since childhood with nearly complete loss of hearing. There is a large perforation in the drum and a small polypus. First application of radium was made January 4 and was continued daily until January 9, when he failed to appear and has not been seen since. On January 9, however, the last day of treatment, there was no discharge to be seen in the canal.

Case IV.—M. S., aged twenty-seven years. Ear has discharged for nine months; large perforations in both drums. Emanations were first used January 3, 1905. On January 8 the patient reported less discharge. The microscopical examination of the pus revealed bacilli identical with the Klebs-Löffler. On February 11 the emanations were discontinued, as there was now no appreciable change in the condition.

Case V.—G. B., chronic suppuration of the middle ear with polyp in the canal. Radium emanations first used January 6 and were continued daily until January 15, when the polyp was removed by the means of a snare. After this time the emanations were used until January 29, when they were discontinued, as there was no appreciable benefit.

Case VI.—M. M., aged seventeen years. Was first seen January 1, 1905. Diagnosis, atrophic rhinitis and ozena. The method followed in this case was first to remove all crusts from the nasal cavity, and after drying the surfaces the emanations were made use of in both nostrils for two minutes at each sitting. This treatment was carried out daily until February 10, 1905. There was some improvement in this case, probably resulting from the daily careful removal of all crusts. A careful examination of the case afterward showed a return to the original condition, so that the emanations could not be considered to exert any marked influence upon this type of inflammatory process.

Case VII.—M. C., aged twenty-four years. Also a case of atrophic rhinitis with a well-marked chronic catarrhal otitis media. In this case the emanations were not only used in the nasal cavities, but were included in the circuit when the middle ear was inflated by means of the catheter. This treatment was made use of for twenty-five days, when it was discontinued because no decided advantage from the use of the emanations could be ascertained, either to the otitis media or to the atrophic rhinitis.

Although this somewhat unfavorable report is based upon but few cases, the experiments were carried out with great care as to detail and without bias of any form. No opportunities were obtained for applications to infectious throat diseases, but the experiments made upon bacteria would seem to cover that field and definitely determine that the emanations would be useless in this class of cases.

It would have made this report more complete (1) if series of cases of malignant and benign tumors of the nose and pharynx; (2) syphilitic ulcerations; (3) tuberculous ulceration (especially faucial) and in thoracic diseases, could have been subjected to the emanations. This was, however, impossible in the time at my disposal.

I am indebted to my assistant, Dr. Kopetsky, for carrying out many of the details of these experiments.

SUPRAPUBIC PROSTATECTOMY.

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Hypertrophy of the prostate, with its attendant train of symptoms, residual urine, cystitis, pyelonephritis, occasional periods of complete retention, etc., is now becoming generally recognized as a distinct surgical proposition.

Regulation of the habits of life and the recommendation of the careful use of the catheter has been until recently our main reliance for the alleviation of symptoms, and will probably still continue to be used in selected cases. The constant use of the catheter, however, is invariably followed by dangerous complications, and not infrequently periods of complete retention, with all the dangers and discomforts of distention, supervene. This symptom is certainly an absolute indication for radical procedure.

Too often mere suprapubic aspiration is selected as the best means of securing relief in this condition, and I wish to protest against such procedure, as tapping an infected bladder with walls thickened as the result of chronic cystitis is liable to cause a leak at point of puncture. The judicious plan of treatment is to perform suprapublic cystostomy, and this should be done at once and drainage of the bladder instituted. This operation is simple, and it may be done anywhere under local anesthesia, and complete enucleation of the gland can follow immediately, if patient's condition warrants the giving of a general anesthetic. Otherwise the bladder can be treated through suprapublic opening, and the complete enucleation deferred until such time as an anesthetic may be safely given.

This brings us to the question of when to operate in cases of enlarged prostate. The answer supplies itself when we consider the probable outcome of the condition if allowed to remain, and the simplicity of the operation itself. The mortality of catheterization is probably greater than that of the radical procedure, particularly if the latter be performed at an early stage of the enlargement—hence I recommend operation in all cases where the prostate is large enough to cause symptoms.

Various methods of operation have been devised which narrow down to those (1) which are partial with knife or cautery, palliative in their intent, and not to be recommended because they have all the disadvantages and none of the advantages of the complete operation; and (2) complete enucleation of the gland, which is the

operation to be recommended in every case of hypertrophy with symptoms.

In taking this latter course two routes are open for performing it, viz., the perineal and suprapubic.

The successful complete enucleation of the prostate is one of the most satisfactory of surgical procedures, and the relief to the patient who has been obliged to urinate or use a catheter every hour or two day and night is marked. The choice of method, whether by the upper or lower route, is one which time alone will decide. Both will probably continue to be used as indicated by the particular case.

For the occasional operator there is no doubt that the suprapubic operation is the more simple one, and the liability of embarrassing complications much less. Convalescence is more comfortable and the danger to life is practically nil. One of the complications most distressing to the comfort of the patient and most disastrous to the reputation of the surgeon, injury to the rectum, is practically eliminated by the choice of the upper route, the only distressing sequel to this method being a possible resulting fistula; but this, if persistent, can be easily remedied by a simple plastic operation.

The operation of enucleation of the prostate by suprapubic cystotomy is as follows: The bladder is distended by air or water, a vertical incision is made through skin and fascia, the recti retracted and bladder exposed; an incision is made through the bladder and the edges grasped with forceps. Silkworm-gut sutures are introduced through entire thickness of abdominal wall securing the bladder, tied and left long. With the left fore-finger as a guide, a snip is made with scissors through the mucous membrane of the trigone directly behind the internal meatus. The finger is gently insinuated into this opening and the separation of the gland from its capsule is commenced. One or two fingers of the gloved right hand are now passed into the rectum and the prostate pushed up, and with the left index finger the enucleation is continued. This is generally very easily accomplished, guided by the fingers in the rectum; occasionally a band of fascia will require separation with a blunt-pointed scissors or dissector. When the prostate has been well loosened from the mucous membrane it may be grasped by a volsellum forceps and pulled up, making it easier to strip.

If it is desired to see the field of operation the patient may be put in the Trendelenburg position, the bladder walls retracted and the field thus exposed.

The prostate having been removed, the bladder is flushed out with a hot salt solution and is distended with a large amount of iodoform gauze, after the manner of a Mikulicz drain. This packing prevents hemorrhage, ensures antisepsis and drains away the urine as soon as it accumulates. I consider this packing of the bladder one of the most important points in the after-treatment, as it prevents septic absorption and renders the bladder walls healthy. It also prevents the ammoniacal odor of the urine, so distressing after bladder operations. The gauze may be left in four or five days. An occasional hypodermic or suppository of morphine may be needed for the first few days. After the removal of the gauze the edges of the wound are approximated with adhesive strips, and it will generally close in two or three weeks, and the patient will be urinating naturally through the urethra. An occasional washing of the bladder may be indicated, but where gauze pack has been used frequent irrigations are not necessary.

The patient is able to be up and around the room in two or three days. A liberal dressing of absorbent gauze and cotton frequently changed will keep him tolerably dry and comfortable during convalescence.

The points I wish to emphasize are:

1. Suprapubic cystostomy under local anesthesia instead of aspiration as an emergency measure in cases of complete retention from enlarged prostate.

2. The simplicity and freedom from complications and sequelæ of the operation when performed by the suprapublic method.

3. The virtue of packing the bladder with iodoform gauze after the method pointed out.

PREVENTION AND TREATMENT OF PUERPERAL SEPSIS.

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I DO not feel that I should offer any apology to this assembly of men who are so vitally interested in the subject under discussion. Though it has been written about for ages and discussed by our most able men, we are constantly reminded of the need of more knowledge and more systematic work along this line by seeing or hearing of some woman losing her life at time of confinement. The picture is typical; the woman is confined; on or about the third day we find that she has had a slight chill, that the temperature has risen as a result; then it is that we begin to make excuses to the family for her condition, that she is bilious, that her kidneys are out of order, etc. I know that there is not a man before me to-day who, fully realizing his responsibility, does not watch his obstetrical cases with great care for the first few days after confinement; most of us with the constant fear that this one may be the case of infection that will cause us to feel much chagrined. I have no class of work that causes me more anxiety.

It was my misfortune to be called to a very severe case of infection in the first few months of my professional career. At that time I did

not feel that I was sufficiently posted to treat the case, and so told the husband. At my suggestion two consultants were called; they were both men of ability and reputation. At the time that they saw the woman the posterior cul-de-sac was as tight as could well be without rupture. I know now that that pelvis was full of pus. I had never done nor had I seen done a vaginal puncture for the relief of this condition. In a few hours after seeing the woman she developed general peritonitis and died a few days later. This case was treated with salts, calomel and opium. While the results might have been the same had other methods been pursued, I shall always feel that that woman's life was lost by not receiving the proper treatment at the first.

The statistics of puerperal infection cannot be relied upon. Most of us know of cases of puerperal infection and death reported as being due to typhoid fever, malaria, occlusion of the bile passages, to previous bad health and other like excuses. In this day of advances in all sciences the death-rate from puerperal sepsis is practically the same in private practice as it was years ago. Statistics of private work are unreliable in the South for several reasons: First, there are those in the profession who will not report a death as due to puerperal sepsis for fear of losing professional prestige in that locality, thereby losing fees. Then there are others who fail to report the true cause of death from ignorance of the real condition. Also a great amount of work is done by midwives, especially among the very poor whites and negroes. Just here I should like to say that there should be some law governing the practice of these midwives; they should be forced to stand an examination along the line of their work. Too many women are sent to the Great Judgment Bar by their uncleanly, not to say filthy work. The reports from the hospitals, although reliable and valuable, do not give us any idea of what is occurring on the outside. In hospitals and maternities the surroundings are the best, with the best physicians of the locality to conduct the case, with trained assistants, with nursing by competent hands, with time to prepare the patient, her bedding and clothing, with all instruments and dressings sterilized after the most improved methods; whereas, on the other hand, in private work we have to contend with all kinds of cases, in all stations of life, with all kinds of nurses, often a meddlesome negro nurse who is a midwife as well as a nurse.

While on a recent visit to New York I saw Dr. W. M. Polk operate upon two cases of infection in one day that were sent into Bellevue Hospital from the crowded districts of New York. The same afternoon I saw Dr. Stewart operate for the same condition.

At a recent meeting of the Philadelphia Obstetrical Society Dr. Hirst said that he had to operate upon a large number of these patients every year. In the last three days three of the most desperate cases of puerperal sepsis were brought into the University Hospital. He has usually from four to six cases under observation.

Go back a few years in obstetrical practice, and you will see a great many patients who had "childbed fever," phlegmasia alba dolens and their complications, and they were considered unavoidable. Despite the great improvements in antiseptics, fever in the puerperal state is still seen. Strict asepsis in obstetrical work is practically impossible, owing, first, to the conditions that might have existed before we examine the woman, as the presence of gonococci, staphylococci, etc., and then to the anatomical relations, the close proximity of the anus, the excretions and the difficulty of making the vulva aseptic on account of the folds of the vulva and hairs.

It is admitted by all scientific workers that puerperal sepsis is due to the different streptococci, gonococci, staphylococci and to *Bacillus coli communis*. Then, when we admit the cause, we should use every effort to prevent the result. We should exercise the greatest care in our work in preparing the patient for confinement. We should see that she has had a general bath, with especial attention to the parts surrounding the vulva, that she should have on a clean gown, that the bladder and bowels are emptied. The bed should be prepared so that all discharges can be removed when the woman is cleaned up after the birth of child. A rubber sheet about four by six feet should first be placed on the bed, this to be covered over with a clean sheet; the use of the Kelly pad is advisable for two reasons, the ease with which it can be made aseptic, and its cleanliness, since it catches all discharges. If the rubber pad is not used, an absorbent pad should be placed next to the rubber sheet and covered over with the draw sheet; the top sheet should likewise be clean. Where I can direct the preparation of the bed, I like to have the sheets come to the room fresh from the laundry.

The Kelly pad should be thoroughly soaked in bichloride solution before being placed under the woman. Then, with the woman placed in the dorsal position, I have the nurse—or, in the absence of a competent one, do it myself—clip the long hairs from the mons veneris and labia majora, then sponge the external parts thoroughly with bichloride solution 1 to 2,000.

With the coat removed and a rubber apron on for a twofold purpose, to protect the clothing and to protect the woman from any germs that may have accumulated on your clothes in everyday work, with the sleeves well above the elbows, scrub thoroughly with soap, brush and warm water from five to ten minutes, where time will allow, then soak the hands thoroughly in bichloride solution, 1 to 2,000, for at least three to five minutes; careful attention should be given to the nails. I prefer the use of gloves, soaking

them thoroughly in bichloride solution of same strength. It is admitted that all cases of puerperal sepsis are caused from without, so we cannot use too much care in our first preparation. When you have gotten to the case late and have not time to make thorough preparations, the hands should at least be soaked in antiseptic solution, preferably bichloride solution, and gloves worn, taking due care not to make any more examination than is positively necessary, and by no means in the vagina until you have time to cleanse the hands thoroughly. The parts should be cleansed hurriedly with bichloride solution before making any examination. After preparations have been made, make a careful examination; do not allow the examining hand to come in contact with the unclean parts of the woman. If possible make a diagnosis at your first examination, then watch the descent of the head by making external examinations; in normal cases one or two vaginal examinations are all that is necessary. One mistake that we make is in examining the woman too often. It not only increases the danger of infection, but increases the woman's anxiety as to her condition. Of course, there are cases where this rule will not apply. When it is necessary for version to be done or forceps used, the hairs should all be shaved off from mons veneris and surrounding parts, then scrubbed thoroughly with soap, water and bichloride solution. A bichloride douche or lysol 1 per cent. should be given before delivery; this cleanses the vagina, and where lysol solution is used it acts as a lubricant. In normal cases of labor the douche is not advisable by any means, especially after delivery. After the child is delivered the placenta should be delivered by Credé's method; it should then be carefully examined to see that it is intact and that all membranes have been removed; then the external parts should be sponged off with bichloride solution 1 to 4,000 and a sterile napkin applied over vulva. This should be changed and the parts sponged off with bichloride or lysol solution every few hours. Where the forceps have been used an intra-uterine douche should be given, a bichloride 1 to 10,000 or lysol 1 per cent. solution being used. The danger from absorption is practically nil from this strength. The solution should never be stronger than this in the uterus.

In all cases, after the third stage of labor is completed, the perineum should be carefully examined for tears; where there is a tear of any consequence, more than the simple breaking of the continuity of the mucous membrane, it should be repaired at once, within the first six to eight hours at the longest. The woman should be turned crosswise in the bed; a sheet folded can be used very satisfactorily for leg-holders; then cleanse the wound thoroughly with antiseptic solution and approximate the torn parts carefully, being sure that you approximate muscle to muscle, etc. The instrument shops now carry a very satisfactory ligature, threaded in needles, sterilized and sealed in glass tubes; chromicized and plain catgut is the best suture material. The closed tear is much less liable to become infected than when it is left open. I saw a case of infection recently where the doctor had closed the torn perineum with plain ball cotton thread taken from a workbasket in the room; the case was seen by a third physician, who told the family that the trouble was caused by the perineum having been closed at all, that it should have been left open. I find men occasionally who contend that the woman is much more liable to become infected if the tear is closed. For my part, I much prefer taking chances with it carefully repaired, as it does not leave so much raw surface for absorption. In all cases where I have a tear I close it at once, in most cases anesthetizing the patient. In cases where forceps and instruments are used it is necessary that they be carefully sterilized; they should be boiled and used from the same vessel that they are boiled in, or placed in a sterile one in a 1 per cent. lysol solution. The ligatures can be reboiled along with the instruments where the ones referred to are used.

The woman should be watched carefully for the first five to seven days, the nurse should keep the parts thoroughly cleansed with a bichloride solution 1 to 4,000. Should the lochia become offensive or the temperature rise above 99° to 99.5° F. a vaginal douche should be given at once; unless the temperature reaches normal in a few hours a careful digital examination should be made, and especial care given to the possible retention of membrane and pieces of placenta. You should see that the bowels are well opened, and that the kidneys are acting normally. Where the vaginal douche does not reduce the temperature in a few hours, the dull irrigating curette should be used with great care, using very little force, for fear of puncturing the uterus. Bichloride solution 1 to 10,000 or lysol one per cent. solution should be used, using as much as two gallons at the time, and as warm as can be borne by the patient. Do not pack the uterus with gauze after curetting, as this retains discharges. I have done this and upon removal twenty-four hours later found that the odor from the gauze was worse than the original condition. Elevate the woman's head or place her in a sitting position for a few moments to allow the uterus and vagina to empty themselves of the solutions used. This should be followed by hot douches every three to four hours, using two gallons at a time; this aids involution of the uterus, besides being soothing to the patient. Where the intra-uterine douche has been given with bichloride solution follow this with normal salt solution, as this will dissolve the albuminate of mercury formed in the uterus. After this give due care to the breasts, as they sometimes cause fever from slight inflammation or occlusion of the milk

ducts. Should the temperature persist, the discharge remain offensive, the pelvic organs and lower abdomen become tender, this patient should we watched with care. The tubes and ovaries should be given especial attention, and the posterior cul-de-sac watched. One point on which I wish to lay stress especially is the making of careful digital examinations.

I was called ten days ago to see a young woman who had been confined three months previously; she had been in bed ever since confinement with enlargement and inactivity of the liver, acute Bright's disease, inactivity of the kidneys, typhoid fever and pneumonia. When I was called it was time to sign the death certificate, which I did two days later. Upon entering the room the odor was unbearable. I made an unsatisfactory digital examination; everything in the pelvis seemed solid. I removed something from the vaginia, which appeared to be decayed placental tissue. She had general peritonitis and was green from absorption of toxins; temperature 104.5° F., pulse 140, respiration 40. I told her husband that I was powerless to help her; she died about thirty-six hours afterward.

Where there is infection of the uterus it spreads to the surrounding parts through the lymphatics and through the tubes into the peritoneal cavity. Often with these mild cases of infection, with infiltration into the tubes, ovaries and pelvic tissue, this condition can be greatly benefited by using systematic hot douches every three hours, preferably lysol solution 1 per cent., about two gallons at the time. This will very often arrest the infection and aid resolution. Should you not be able to cause resolution the inflammation may become localized and form an abscess in the pelvis or some pelvic organ. Should these abscesses appear they should be opened through the vagina, a T-shaped drainage tube left in. I use the drainage tube in preference to the gauze because my results have been best with the tube; as previously stated, I have used the gauze, and upon removal after twenty-four hours find that the odor is worse from the gauze than from the pus that was first removed. Gauze not only does not drain well, but stops the flow of pus and débris. I have found in these cases that the temperature would rise until the gauze was removed and then drop in a few hours. Vaginal douches should be given every three to five hours to keep the pus washed away and stop absorption. Drainage tube should be left in for twenty-four hours, and if patient is doing well, forty-eight hours, then removed, boiled and replaced if necessary. Where the infection has been general, the patient begins to turn green, with quick thready pulse, temperature showing septic variations, the whole body bathed in profuse perspiration, with sweetish breath; these cases are desperate. The same local treatment should be kept up, rectal enemas of normal salt solution should be given one pint at the time, usually the woman can retain a pint every three hours. Normal salt solution should be given subcutaneously; under the breasts and under the skin of the thighs are the most acceptable sites. In the event you cannot wait for this, give it directly into the veins, from a quart to three pints at a time. Stimulants should be given as is indicated, in the form of whisky, strychnine and such heart stimulants. The bowels should be kept open and the kidneys acting normally. Rubbing the whole body with alcohol is beneficial and acceptable to the patient. Strictly liquid diet should be given. In the use of the normal salt solution, the nine-tenths of one per cent. solution should be given, as this is isotonic with human blood; the six-tenths of one per cent. is isotonic with frog's blood and may cause some solution of the hemoglobin. I have seen cases of septicemia where, after the use of the normal salt solution, the temperature would drop several degrees in a few hours, and the pulse come down from 140 to 100. Dr. Robert T. Morris speaks of the use of normal salt solution as "blood washing." It dilutes the toxins in the blood, and aids elimination through the kidneys and skin.

In May, 1904, I was called in consultation with Dr. G. D. Couch, of Hapeville, to see a Mrs. H., who had been confined four days previously; on the second day after confinement she developed a temperature ranging from 105° to 107° F.; this kept up for forty-eight hours when I saw her. There was tenderness in the lower part of the abdomen, an offensive discharge from the vagina. I made a careful digital examination, found the uterus large and boggy, and could feel what I took to be some small pieces of membrane. There was tenderness on each side of the uterus, and great tenderness over the body of the uterus on pressure. I advised immediate curettement, which was done at once with the patient thoroughly anesthetized. I used a dull irrigating curette. There was a small amount of débris removed. She had unavoidably been confined in a room where her husband had had smallpox a few weeks previously. After curetting her the temperature dropped to normal in a few hours, to rise again on the following morning. The second day after seeing her I opened an abscess through the right side of the vagina; two days later one through the left, and two days later one through the posterior cul-de-sac. Three days later I opened another at the extreme right of the vagina, she being anesthetized each time. Her temperature kept up all this time, and just here she began to complain of pain above the brim of the pelvis on the left side. By bimanual examination a small enlargement could be felt high up in the pelvis. In about three days this could be detected through the abdominal wall, which gradually enlarged. Then I advised that she be brought to Atlanta, which was done, and she was placed in the Tabernacle Infirmary. The following morning the abdomen was opened directly over this en-

largement, which was just above the brim of the pelvis. Upon cutting through the abdomen wall it was found that the mass was separated from the peritoneal cavity by adhesions. The left tube could be traced up to this mass, much thickened and enlarged. Upon opening the abscess it was found full of very offensive pus. The cavity was thoroughly flushed with salt solution, three rubber drainage tubes were left in, and dressings applied, patient placed in bed on her left side to keep up drainage. The external dressings had to be changed every few hours for the first few days. At this time I found another abscess between the bladder and the vaginal wall, which was opened and drained. This case was treated with the normal salt solution, as suggested. She was confined to her bed in the hospital two months and ten days, when she was discharged in good condition. I am informed that she is again pregnant.

Finally, the points that I wish especially to emphasize in this paper are: (1) The careful preparation of the bed and the woman before the birth of the child, with especial attention to the hands of the physician. Then the examination of the placenta and membranes. (2) After birth of child examination of perineum for tears, and if they are present repair them at once. (3) In case there is a rise of temperature you should start at once with treatment. (4) The importance of making careful digital examinations, the use of the dull irrigating curette early, where the temperature is not reduced by douches. (5) The importance of the normal salt solution to dilute the toxins and to aid absorption; the strength of bichloride solutions used. (6) The preference of tube over gauze drainage in these cases; the absolute avoidance of gauze in the uterus after curetting. (7) The importance of opening and draining the abscesses as they form in the pelvis or any pelvic organ.

A PLEA FOR SURGICAL INTERVENTION IN SUSPECTED MALIGNANT DISEASE OF THE ABDOMINAL CAVITY.

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The study of malignant disease is greatly simplified by the practical recognition of a few basic principles: (*a*) Primarily it is strictly a local ailment; (*b*) at a more or less early stage it infiltrates widely the surrounding tissues, affects regional glands or is conveyed to distant organs by metastasis, and thus ceases to be local; (*c*) the period of time a neoplasm has existed or its size is no evidence of the extent of its dissemination.

From these premises certain practical deductions may readily be made: (1) If at an early stage, while still strictly localized, the pathological tissue is entirely excised, the growth will not return; (2) if considerable infiltration has already taken place, or if the nearby glands are already affected, complete removal is only possible by very wide dissection, and even then success depends largely on chance; (3) after the disease is extensive, and especially after involvement of parts not susceptible of complete removal, or after the occurrence of metastases, the case is hopeless, and all that can reasonably be expected is to palliate and mitigate to a slight degree the intensity of the suffering. Outside of surgery nothing has been found of any value in the treatment of internal carcinoma or sarcoma. Occasional reports of X-ray cures of superficial epitheliomata do not in any way affect the discussion of abdominal malignant disease.

The foregoing forms the foundation of a few observations desired to be made concerning malignant disease affecting the intra-abdominal viscera. Successful removal is here possible in almost any situation if the operation is undertaken while the growth is still local. But it must be confessed that heretofore most of the cases of intra-abdominal malignancy have ended disastrously. The greater number of patients have died without any attempt at removal. A minority have been treated surgically. In many of these the exploratory incision has revealed quite impossible conditions and the surgeon has been constrained to close his incision without any effort at removal of the disease; or such a condition has been found that excision of the disease has been out of the question, but a palliative operation has been done, as a gastro-enterostomy for inoperable pyloric cancer; or the viscus invaded has been resected or removed and the patient has died of the operation, owing to the extent of the operation necessitated by its lateness, or to the weakened condition brought on by the long illness, or to a combination of the two; or finally, the operation is successfully accomplished, the patient makes a rapid convalescence, only to die in a few months or a year or two from recurrence of the neoplasm.

Only very rarely has the surgical procedure been carried out while the disease was still local and curable by local extirpation. This is not a fanciful picture, but represents the average of work being done by operators to-day.

The reason for the necessity of this discouraging admission is fourfold: (1) The patient is late in consulting a physican; (2) when consulted there is too often a tendency to regard all cases with intra-abdominal symptoms as due to errors of digestion and to prescribe pepsin, etc., without a serious effort to make an accurate diagnosis; (3) even when malignant disease is suspected, the results of surgical intervention in the past have been so disheartening that many physicians are yet loath to advise operation; (4) when operation is advised, such is the general hopelessness among the laity of relief by surgical means that they first try the X-ray or other

fad, and thus more valuable time is lost. Everything which tends to delay early radical treatment simply serves to perpetuate the gloomy feeling with regard to the treatment of this disheartening disease.

I may be too much of an optimist, but it is my opinion that if the attitude of the profession could be reversed a ray of hope might yet be made to fall on even such a dire malady as cancer. It will not come about by spasmodic effort here and there, but only by a general readjustment of views on the part of the profession at large. It will necessitate more alertness, a more general resort to careful painstaking diagnostic methods, a greater courage in advising the thing that reason dictates, and the substitution of a little optimism for the pessimism which now prevails.

A continuation of the too general practice of prescribing a little pepsin and hydrochloric acid, or other placebo, for every patient complaining of indigestion, without any physical examination or the use of laboratory aids, will never bring about any improvement in results. Every patient who consults a physician is entitled to the benefit of all the resources of modern science in order to clear up the diagnosis and give the correct advice or treatment. In view of the manifold lesions apt to occur within the abdominal cavity, it seems especially mandatory on the profession to make careful examinations whenever a patient complains of symptoms in this region. Such conscientious study of one's cases is only fulfilling the obligation of an implied contract.

Suppose that for a period all members of the medical profession should resort to the painstaking examination here recommended. It would bring about a revolution. Many things would be discovered among the old chronics not suspected. Patients hitherto treated in a routine fashion and deemed decidedly uninteresting, denominated bores or hysterics, would be found to possess pathological lesions of the greatest interest. Many of them would be found susceptible of complete cure, and we should be led to a much greater appreciation of the possibilities of modern medicine than ever before. Incidentally it would be the hardest blow that could be delivered at the osteopathists, Christian Scientists and other faddists, because myriads of patients heretofore unrelieved and forced to go elsewhere would be cured.

But, in spite of all the modern methods, clinical and laboratory, there are still great difficulties in making accurate diagnosis of early malignant disease when it affects the stomach, intestines or other abdominal viscus. Unfortunately most of our positive symptoms are late in the disease—too late to permit of the ideal treatment. In cancer of the pylorus, or pyloric end of the stomach, obstructive symptoms, coffee-ground vomit, palpable tumor, etc., do not make their appearance until so late in the disease that dissemination, or, at least, extensive infiltration, has already taken place and complete removal is rarely possible. The absence of HCl, and the presence of lactic acid is also a late symptom, and not always conclusive. The presence of the Eppler-Boas bacillus is of somewhat greater value, but even this is often misleading.

Therefore, if we would aid in bringing about an improvement in results we must not wait for such positive symptoms that all the patient's friends have already made the diagnosis, but operative intervention must be made before the diagnosis is absolutely certain. Several years ago I suggested that when, after careful examination of a person of middle or advanced age suffering from a comparatively recent or progressive gastric disease, and the use of the best modern dietetic and medicinal treatment for two or three weeks without bringing about improvement, a lively suspicion of cancer of the stomach is allowable.

In cases of this character an exploratory incision is likely to reveal cancer. Even when the incision is made on suspicion the disease has been found to be in a surprisingly advanced state, and the natural wonder has been why the clinical picture was not more positive. Sometimes, happily, the exploration will not reveal malignant disease, but a gastric ulcer, or adhesions which may be relieved by gastro-enterostomy, or by freeing the adhesions. Even if nothing is found that can be relieved by operation the case is cleared up and no harm will have been done by the incision. This last will be very rarely the case, as usually the conditions bringing about enough suspicion of malignancy to warrant the procedure recommended, if not caused by cancer will be found due to some gross surgical lesion.

In cancer involving the gall-bladder, the intestines, the body of the uterus, the same thing is true. By the time the disease has advanced to such a stage that a definite diagnosis is possible, it has probably progressed too far for successful surgical removal. The unexplained presence of blood and mucus in the stools, localized accumulation of gas, which appears to be due to inability to pass along the intestines freely, a rather abrupt onset of troublesome constipation, not relievable by ordinary means, all call forth a decided suspicion of malignant disease, and should not be lightly dismissed. To wait until a palpable tumor makes its appearance is usually to wait until the peritoneum or other tissue is involved and the dissemination is so great that permanent cure is out of the question.

One of the most satisfactory cases of cancer of the intestines I have ever had was in a man who came to me with a very large left inguinal hernia—the largest I have ever operated—the mass hanging down to the knees. The immediate cause of his seeking operation was recent pain he had experienced and constipation. On opening the sac the sigmoid flexure was found with a hard malignant ring involving three-fourths of the circumference. There was also a gland in

the mesosigmoid three-quarters of an inch in diameter and of that characteristic woody hardness with which we are all familiar. Nearly seven inches of the large bowel were resected, the ends united by suture, and the man is now in excellent health, two years after the operation. The pathologist reported this a columnar-celled carcinoma.

When the diagnosis is positive sometimes an operation is indicated, at least a palliative one, but here too often the disease is found to have progressed too far for successful removal.

There is still another type of case, unfortunately at the present time the commonest of all, where the disease has manifestly progressed too far to offer any hope of relief. There is extensive dissemination over the abdominal cavity, affected glands are to be found in the inguinal or cervical regions, or already metastases have made themselves apparent. In such cases it is better for the credit of surgery to resort to no operative procedure.

In intra-abdominal malignant disease, therefore, there are three classes to deal with: (1) Cases too far advanced for any operative procedures; (2) cases with a fairly clear diagnosis of malignancy and offering apparently a fair chance of relief by operation; (3) cases with only a well-defined suspicion of malignancy where an exploratory incision is confidently advised. This is the type of case offering much promise of successful operations and where a great stride in advance may be predicted if the profession can see its way clear to adopt the suggestion of advising an operation as soon as a strong suspicion of malignancy is found.

Let us not lose sight of the fact that when a patient dies of cancer of the abdominal cavity, there was once a time when it was localized, and could have been successfully removed and a permanent cure effected!

PRESIDENTIAL ADDRESS: THE INSANE IN CANADA.[1]

BY T. J. W. BURGESS, M.D.,
OF MONTREAL, CANADA.

GENTLEMEN: My first duty is to reiterate my thanks to you for having called me to this chair, a distinction I can attribute only to the fact that in honoring me you sought to honor, not me alone, but the Canadian members of the association. "No man is born without ambitious worldly desires," says Carlyle, and surely there could not be a more laudable ambition than to became the president of this, the oldest of American medical associations, a position of which Dr. John S. Butler said, on his elevation thereto, in 1870. "In my opinion, to be elected President of this association is the highest honor of the profession." Rarely, however, does gratified ambition bring peace of mind, and I, alas, have been no exception to the general rule. The thought of occupying a position that had been held by such intellectual giants as Woodward, Bell, Ray, Kirkbride, Butler and Earle, all members of the "glorious original thirteen," besides many other illustrious men, abashed me—made me fully conscious of my inability to fill it properly. Nor did the sense of my demerit lessen as the days rolled by. On the contrary, the long list of presidents, whose names are familiar to us because of their attainments in psychological medicine, loomed continually before my eyes, added to which the task of to-day's address haunted me like an ever-lengthening shadow. I had but one thought to reconcile me to the greatness your generosity had thrust upon me. It was that the kindness which prompted you to elect me as your president would be extended so far as to induce you to overlook my shortcomings, and that if, in the matter of the address, I could not, like my predecessors in office, clothe my thoughts in

> "Choice word and measured phrase, above the reach
> Of ordinary men,"

you would at least take the kindly will for the imperfect deed.

In my search for a topic upon which to discourse, I fully verified the words of Terence, "*Nullum est jam dictum quod non dictum sit prius.*" Everywhere I found the fields of medico-psychology so well harvested by my forebears that there was apparently nothing left for even a gleaner. Nevertheless, a subject had to be selected, and I finally concluded that, as the oldest medical officer connected with the insane asylums of Canada, in point of length of service, I could not do better than tell you something about the development of our Canadian asylum system, the status of the insane in our Dominion, and what, in my estimation, are some of our most crying needs for the betterment of those so justly styled "the most unfortunate of all God's afflicted ones."

Of the number or condition of the insane in Canada under the French regime, that is, prior to its accession to England in 1763, I have been able to learn little or nothing. Doubtless, their treatment differed in nowise from the cruelty shown them in all other countries at the same period. That they were not totally neglected is manifested, however, by the fact that, in 1630, the Duchess d'Aiguillon, niece of Cardinal Richelieu, founded the Hotel Dieu of Quebec for the care of indigent patients, the crippled, and idiots. As here employed, the term idiot probably refers to all forms of mental disorder, acquired as well as congenital, and the creation of this establishment is especially noteworthy inasmuch as it was not only the first move toward the proper care of the insane, but was the first hospital instituted in North America. Four years later, namely, in 1643, Mademoiselle Mance founded the Hotel Dieu of Montreal to meet the same requirements.

For well-nigh three-quarters of a century after the establishment of British rule, the con-

[1] Delivered before the American Medico-Psychological Association, at San Antonio, Texas, April 18, 1905.

dition of the insane in the various Crown Colonies, which now make up the Dominion of Canada, was deplorable in the extreme. Each county seems to have cared for its insane as best it could by confining them in almshouses and jails. The poor lunatic did not appeal to the sympathies of the public—a workhouse was good enough for him if harmless, a prison his proper place if dangerous. The thought that he might be cured, and that no effort should be spared to cure him, occurred to few, if any. Bereft of man's noblest attribute, the mind, lunatics were regarded as little better than brutes, and were too often treated accordingly. While falling short of the Napoleonic Code, published in 1804, which openly classed the insane with beasts, and ordered the punishment of those who allowed "the insane and mad animals to run about free," the law in Canada deemed them at least on a par with criminals. In proof of this witness an act, in force as late as 1835, which authorized any two Justices of the Peace, without any medical certificate, "to issue a warrant for the apprehension of a lunatic or mad person, and cause him to be kept safely locked in some secure place directed and appointed by them, and, if they deem it necessary, to be *chained*."

The first of the old British North American colonies to make special provision for its insane was New Brunswick, by the conversion, in 1835, of a small wooden building in the city of St. John, originally erected as a cholera hospital, into an asylum for lunatics. This institution, the first of the kind in Canada, continued in operation for a little over thirteen years, under the medical supervision of Dr. George P. Peters, a native of St. John, but a graduate of Edinburgh University.

Dr. Peters had no previous experience in the care of the insane, but, being energetic and deeply interested in the welfare of his charges, did exceptionally good work considering how he was handicapped. That he was in advance of his day, and fully recognized the importance of special training for the proper treatment of mental diseases, a fact so often lost sight of by governments and their appointees, is evidenced by his urging, through vainly, the legislature to get a physician from England, one trained in the best schools of psychiatry, to take charge of the new asylum. The difficulties he had to encounter were many, not the least being one that is equally common to most of us at the present day, that of finding suitable nurses. On this point he quaintly reports: "I find it very difficult to secure proper attendants, especially for the female patients. Those who apply for the place are coarse and ignorant, their only qualification for the position being good muscular development, and absence of all proper sensibility."

The following record, preserved in the Sessions of the Peace minute-book, gives a good idea of the results attained by Dr. Peters during the first thirteen and a half months of his incumbency. "Of the thirty-one admissions," it says, "there have been discharged—cured, six; improved, five; to friends, not improved, two; died, four. Of the remaining fourteen, one is much improved, two perceptibly improved and eleven without any visible improvement." Some of the details of the itemized accounts, contained in the same volume, are highly suggestive of the times and of the methods of treatment, in which blood-letting and restraint must have played a considerable part, and bathing and light been luxuries:

"W. McBay, for twelve hogsheads of water (for one month), one pound fifteen shillings.

"W. Hammond, for thirty pounds rush lights, ten pence per pound, one pound five shillings.

"Harvie and Allen, for eight tin bleeding cups and one tin pan, seven and sixpence.

"D. Collins (saddler), for three hand mufflers, one pound fifteen shillings.

"G. T. Ray, for twelve straight waistcoats, at twenty shillings each, twelve pounds."

In 1848, this temporary refuge, the pioneer Canadian asylum, was abandoned, the inmates, ninety in number, being transferred to the present institution, the erection of which had been begun two years previously.

Ontario, or, as it was then called, Upper Canada, was the next of the provinces to make a movement toward providing for its insane, the old and recently abandoned jail at York, now Toronto, having been fitted up and opened as a temporary asylum in 1841. Prior to this, numerous attempts had been made in the House of Assembly toward the creation of an asylum, the government going so far, in 1836, as to appoint a Commission to visit the United States for the purpose of obtaining information on the subject. The chairman of this Commission was Dr. Charles Duncombe, who afterward, during the rebellion of 1837, became the leader of the rebels in the western part of the province, and only saved his neck from the hangman's noose, on the defeat of the movement, by making his escape across the Detroit River into Michigan disguised as a woman; this, despite the fact that a reward of £500 had been offered for his apprehension. Dr. Duncombe's report is particularly interesting to us, because he therein gives an account of his visit to Worcester Asylum, Massachusetts, then under the superintendence of Dr. Samuel B. Woodward, who eight years later became the first president of this association, of which he had been also one of the originators. His institution was the one, of all those inspected, that best met the approval of the Commission, and the one, the general plan of which they advised should be followed. In concluding his report Dr. Duncombe thus interestingly outlines his views on the subject of lunacy and the object of the proposed structure: "The building is not designed for the cure of the ordinary diseases of the body, but 'to restore the disjointed or debilitated faculties of a fellow creature to their natural order and offices, and to revive in him the knowledge

of himself, his family and his God.' The subject of lunacy has been until of late years less perfectly understood than any other complaint known to our country that is at this moment successfully treated, but thank Heaven that the disease of an organ of the mind is no longer considered a crime subjecting the unfortunate subject of it to imprisonment, punishment and chains, and that with the exception of this Colony no other portion of America has their insane confined in their jails, and I am well satisfied this will not be the situation of these unfortunate persons longer than until their number and present cost of support is known, and the legislature have time to provide a suitable asylum for their relief."

The makeshift asylum, into which the old jail had been converted, was placed in charge of Dr. William Rees, who had long urged upon the government the necessity for such an establishment, and continued in use up to 1850. At that date the patients were transferred to the present Toronto asylum, which, for twenty-two years after, was the field of labor of the venerable Dr. Joseph Workman, to whose wisdom much that is best in the present system of caring for the insane in Canada can be traced.

Kingston Asylum, generally known as Rockwood Hospital, was the second asylum born in the province of Ontario. It had its birthplace in the stable of the old Cartwright mansion, which, in 1856, was fitted up for the reception of twenty-four female patients. Like its successor, the present structure, opened in 1862, it was originally designed for a criminal lunatic asylum, and as such the institution remained in charge of the Federal Government, an adjunct to the Penitentiary, until 1877. In that year it was purchased by the local legislature and became one of the ordinary provincial establishments.

London Asylum, the third Ontario asylum in point of age, was, when opened in 1859, originally located in the old military barracks at Fort Malden, on the Detroit River, and formed a branch of the Toronto institution, which had become congested. In 1870, the present hospital, at London, having been completed, the patients were transferred there.

Of the other five public asylums in Ontario, that at Hamilton was originally built for an inebriate asylum, but was never used as such, being utilized instead for the reception of the insane, and opened in 1870. Mimico Asylum was first occupied in 1890, Brockville Asylum in 1894, Cobourg Asylum in 1902, and Penetanguishene Asylum in 1904. The Cobourg institution, for female chronic patients, was created by the conversion of Victoria College, the scholastic headquarters of the Methodist community prior to federation with Toronto University, into a hospital for the insane; and the Penetanguishene Asylum, which is for chronics of both sexes, was formerly a reformatory for boys.

Ontario also possesses an asylum for idiots. It is situated at Orillia, where it had its inception, in 1876, in a building originally designed for a hotel. This structure was replaced by a new modern establishment in 1887.

In the Province of Lower Canada, now Quebec, the Quebec Lunatic Asylum, formerly known as Beauport Asylum, is the oldest of the institutions for the insane, the progenitor of the present structure having been opened, during 1845, in the old manor-house of the Seigneur of Beauport, which stood about a mile from the present establishment. Its creation was due to Dr. James Douglas, an uncle of my immediate predecessor in this chair, Dr. Joseph Morrin, and Dr. Charles J. Fremont, but it is now the property of the Sisters of Charity.

The second of the Quebec asylums, L'Hôpital St. Jean de Dieu, or, as it is usually called, Longue Pointe Asylum, is situated a few miles east of Montreal, and also belongs to the Sisters of Charity. It originated in a very humble way in 1852, its capacity at that time not exceeding twenty-five patients. This being found quite inadequate to meet the ever-increasing demands upon their charity, the Sisters, with the sanction of the government, determined to take up the work of caring for the insane on a greatly enlarged scale. The result was the erection of a new St. Jean de Dieu Asylum, which was opened in 1875. This institution was completely destroyed by fire in 1890, no less than seventy-five patients and five Sisters losing their lives in the conflagration. Undeterred by this disaster, the Sisters lost no time in beginning the erection of the third St. Jean de Dieu Asylum. This, the present establishment, which is fully up to date in construction and equipment, was opened in 1901.

The third Quebec institution, rightfully called the Protestant Hospital for the Insane, though generally spoken of as Verdun Hospital, was founded by a number of the charitably disposed Protestant citizens of Montreal for the relief of their co-religionists then confined in Beauport and Longue Pointe asylums. It was opened for the reception of patients in 1890.

Quebec has in addition two institutions which receive idiots as well as some aged and infirm paupers. These are L'Hospice St. Julien, located at St. Ferdinand d'Halifax, and Baie St. Paul Asylum, situated at the Baie St. Paul. Both belong to the Sisters of Charity, the former having been opened for the reception of idiots in 1873, the latter in 1890.

Prince Edward Island stands fourth, and Nova Scotia fifth on the list with regard to the date of beginning special provision for the insane. The hospital of the former dates back to 1847, and of the latter to 1858, since which time Nova Scotia has increased its accommodation for the mentally defective by the creation of a system of county asylums, and combined county asylums and poorhouses. An interesting point in connection with the Nova Scotia asylum is that

to it pertains the honor of having had its site selected by the well-known philanthropist, Miss Dix, of whom it is said in Tuke's "Dictionary of Psychological Medicine": "Although, in every country, men and women and the medical profession have been ready to promote the interests of the insane, the name of Dorothea L. Dix stands foremost among all. Her efforts in improving the condition of the insane were not confined to her native State of Massachusetts, but extended to other States and distant lands. Her life was devoted to their interests, and it is stated that no less than thirty asylums owe their establishment directly or indirectly to her persistent efforts."

The first Manitoba asylum, now located at Selkirk, was originally established in 1871, at Lower Fort Garry, in connection with the penitentiary. One of the old stone storehouses of the Hudson's Bay Company, formerly used for the confinement of Lepine, the notorious Louis Riel's Adjutant-General, was fitted up for the purpose. The second asylum, situated at Brandon, began work in 1891.

The year 1872 witnessed the birth of the British Columbia institution, when an ancient wooden building on the Songhees Indian Reserve, outside the city of Victoria, originally built for a smallpox hospital, was reopened to receive lunatics. The population having outgrown these primitive quarters, it was decided to erect a new aslyum on the main land, close to the town of New Westminster. This was done and the patients removed thereto in 1878.

Of the superintendents connected with the bygone struggles of these beneficent institutions much might be said, but the limited time at my disposal forbids the eulogiums they so justly deserve, even were my pen equal to the task. No words of mine could do justice to such men as Dr. Workman, easily "*primus inter pares*," and fittingly styled by Dr. Tuke, "The Nestor of Canadian alienists"; Dr. Henry Landor, whose rare qualities of heart and mind fitted him so eminently for his position; Dr. R. M. Bucke, to whom is due the introduction of the non-restraint system into Canada; Dr. W. G. Metcalf, who, by his sad and untimely death, added another to the goodly list of physicians who have perished at the hands of those whom they sought to benefit; Dr. J. R. DeWolf, who was foremost in the early care and treatment of the insane in Nova Scotia; Dr. E. E. Duquet, who died worn out by his labors in striving to reform the Longe Pointe Asylum, and Dr. A. Vallée, whose advanced views did so much to improve the Quebec Asylum. The blessed results of the labors of such men can never be fully estimated, their works being truly

"Deeds which are harvest for Eternity."

STATUS OF THE INSANE.

At the present time Quebec is the only one of the provinces of the Dominion in which there is no State institution for the care of the insane. Though vastly improved in every respect and much more strictly supervised by the government than when Dr. Tuke visited them, in 1884, and so graphically portrayed the then existing evils, the two largest hospitals, St. Jean de Dieu and Beauport, are still proprietary establishments, and, as such, still open to the criticism thus forcibly expressed by that distinguished alienist in his work, "The Insane in Canada and the United States," "Far be it from me to attribute to these Sisters of Charity any intentional unkindness or conscious neglect. I am willing to assume that they are actuated by good motives in undertaking the charge of the insane, that they are acute and intelligent, and that their administrative powers are highly respectable. Their farming capacities are, I have no doubt, very creditable to them. It is not this form of farming to which I have any objection or criticism to offer. In the vegetable kingdom I would allow them undisputed sway. It is the farming out of *human* beings by the Province to these or any other proprietors against which I venture to protest. . . . It is a radical defect —a fundamental mistake—for the Province to contract with private parties or Sisters of Charity for the maintenance of lunatics. Whatever may be the provision made by private enterprise for patients whose friends can afford to pay handsomely for them, those who are poor ought to have the buildings as well as the maintenance provided for them by the legislature. They are its wards, and the buildings in which they are placed should belong, not to private persons, but to the public authorities, with whom should rest the appointment of a resident medical officer."

No less pronounced in his condemnation of the "farming out" system is a later writer, one of our greatest authorities on all appertaining to insanity and the care of the insane, Professor Kräpelin. This world-renowned alienist says of it, in an article published some five years ago: "It is not only unworthy of the State, but in the long run it is also dangerous to entrust the care of such institutions to promoters, who are working only on their own responsibility, be they laity or clergy. The best ordinances of State supervision cannot do away with the danger which attends the transference of the insane from the care of the public officials to that of private individuals. Even if State inspection were well carried out, which cannot be guaranteed, only the more apparent abuses could be guarded against. The management of the institution would still be carried out in accordance with the particular views and wishes of those who were in charge and, as a rule, to the disadvantage of the patients."

Following the publication of Dr. Tuke's article, the Medico-Chirurgical Society of Montreal held a meeting at which, among others, the following resolutions were unanimously passed:

"That the 'farming' or 'contract' system

either by private individuals or by private corporations, has been everywhere practically abandoned, as being prejudicial to the best interests of the insane, and producing the minimum of cures.

"That in the opinion of this Society all establishments for the treatment of the insane should be owned, directed, controlled, and supervised by the Government itself, without the intervention of any intermediate party."

Spite of these and other vigorous protests the system remains unchanged, and before Quebec can be counted in the foremost line, where it ought to be, the Province must own as well as supervise its institutions for the dependent insane.

One outcome of the furore excited was, however, the founding of the Protestant Hospital for the Insane, an incorporated charitable institution, which, while paid by the Government for the maintenance of public Protestant patients, is safeguarded by the leading clause in its charter of constitution. This stipulates that the conduct of the establishment shall be vested in a board of management elected by the governors, and that all moneys received by the corporation, from whatever source, shall be expended upon the institution and its inmates. As a matter of fact, ever since the opening of the hospital, the per capita cost of public patients therein has not been less than fifty per cent. more than the Government allowance for their keep, the difference having been made up by the revenue derived from private patients and the bequests of the charitably disposed.

The Province of Nova Scotia, though possessed of as well managed a State asylum as could be desired, is yet behindhand in that it has, since 1886, sanctioned the erection of county asylums, and, in many cases combined county asylums and poorhouses. To these can be transferred the harmless insane from the provincial institution, and to them can be sent direct, idiots, non-violent epileptics and cases of chronic insanity refused admission on statutory grounds to the State Asylum. At the present time there are eighteen of these structures, which, according to the report of Public Charities of 1904, house sane adults, children, insane patients, imbeciles and epileptics. Each is governed by a committee, the immediate management being entrusted to a keeper and a matron, and there is a visiting medical officer attached. These establishments have been erected in pursuance of a plan outlined by Dr. Reid, formerly Superintendent of the Provincial Asylum, though a Nova Scotia medical friend of mine, well acquainted with the system, contends that it was invented by the devil. The scheme was necessitated by the pressing need of additional room for the insane, and the financial inability of the Province to undertake the erection of another public hospital. It is only fair to Dr. Reid, however, to state that this was but one of four alternative suggestions made by him, and that it was the one he considered the least desirable, although the cheapest way to provide the required accommodation.

That county care is cheaper I will not gainsay, but does it best meet the demands of humanity, which, after all, is the true standard to be adopted by any right-thinking community? That it does not seems to be the general trend of the most advanced scientific opinion, and the following resolution adopted at the sixth meeting of this association, held at Philadelphia in 1851, still holds good:

"Resolved, That it is the duty of the community to provide and suitably care for all classes of the insane, and that in order to secure their greatest good and highest welfare, it is indisputable that institutions for their exclusive care and treatment, having a resident medical superintendent, should be provided, and that it is improper, except from extreme necessity, as a temporary arrangement, to confine insane persons in county poorhouses or other institutions, with those afflicted with or treated for other diseases or confined for misdemeanors."

Not a few of the chronic insane are as difficult to manage as the acute, and such being the case, it is hard to imagine any system of county care where abuses will not creep in as a result of the desire to lessen the per capita cost and the absence of constant medical supervision. As practised in the State of Wisconsin it seems to be as well conducted as it is possible for such a system to be, and yet Dr. Burr, our worthy Vice-President, who is a just and honest man as well as a careful observer, after a personal inspection of the system there, published, in the October, 1898, number of the *American Journal of Insanity*, a scathing denunciation of its inefficiency.

Many of the worst horrors connected with the treatment of the insane during the last half century were consummated within the walls of county almshouses. In New York, where the practice of transferring cases which failed to recover in a certain time from the Utica Asylum to the county poorhouses was in vogue for nearly thirty years, and where the county asylum system flourished for over eighteen years, the abuses which seem to be inseparable from almshouse and county arrangement so aroused public opinion that both methods were abolished. By the passage of the State Care Act of 1890, an act which affirms that the dependent insane are the wards of the State, and that their interests and maintenance should be confined exclusively to the State, New York justly earned the proud encomium that, "The leading chapter in the (past) century's history of the care and treatment of the insane in America will be the humane and progressive record of the Empire State."

The State of New Hampshire has also lately recognized the injustice of this method of caring for the insane, and, in 1903, passed an act abolishing county care, and providing for the removal of all lunatics confined in county almshouses to the State Hospitals within a period of six years.

That those connected with and so best qualified to judge of the working of the Nova Scotia system are not themselves enamored of it may be judged from the 1903 Report of Public Charities. Therein, the inspector, Dr. George L. Sinclair, an alienist of repute and a former superintendent of the Provincial Hospital, says:

"The plan of county care adopted in this Province has many grave objections. In a properly equipped and well-officered local asylum, reserved for the exclusive use of insane or imbecile inmates, the objectionable features are fewest. The scheme of associating in one house both sane and insane persons is the most objectionable and unsatisfactory.

"Unfortunately our law permits this to be done, provided the building is made suitable for both classes and for both purposes to the satisfaction of the Governor-in-Council. The difficulties to be overcome to make such a plan of care unobjectionable pertain quite as much to the structure of the municipal mind as to that of the building.

"It is most unfair to the sane members of such a household, whose only affliction is poverty, to compel them to associate with the insane and imbeciles, who are not only irresponsible, but may be a source of positive danger to their companions in misfortune, and it is distinctly unjust to the insane inmates to attempt to care for them with the limited oversight and attention which the small staff of an almshouse can give.

"I have yet to find a single keeper or matron of an asylum to which the mental defectives are sent to associate with the paupers, whose experience in looking after the two classes is sufficient to give the opinion any value, who does not think the mixing of the two kinds of inmates most undesirable. When it is done there is either a dangerous amount of liberty granted the defectives or they are isolated and secluded to an extent that means positive neglect, and leads to distinct deterioration and the formation of bad habits. It cannot be otherwise. The staff of an ordinary almshouse usually consists of a keeper and a matron. The former has charge of the farm and the latter of the housekeeping. When at his work the keeper must either take the insane men with him or leave them at home. The first is often impracticable, and the second unsafe unless the patient is locked up. This more or less frequent seclusion always has an evil effect in causing the insane person to fall into bad habits. Sometimes most objectionable and severe mechanical restraints are used, and nothing but harm results."

In the Province of New Brunswick, it is much to be regretted that the Government, on account of the overcrowded condition of the Provincial hospital, is contemplating a resort to the Nova Scotia system. At the last session of Parliament legislation was passed providing for the examination of all patients therein by a Commission composed of the Medical Superintendent and two other doctors. When the work of the Commission, which began its labors in November last, is completed, a report is to be made to the Government with a view to the selection of those who, being supposed to be harmless, can be sent back to their friends or to the county almshouses. To carry out such retrograde legislation will be to sully the record of a Province which has heretofore always steadfastly declared against the incarceration of lunatics, even temporarily, in prisons or poorhouses—a Province which can boast with pride of having been the first of the British North American colonies to provide special accommodation for its dependent insane.

At present, in New Brunswick, perhaps the gravest existing defect in connection with the insane is the method, or rather lack of method, of commitment to the Provincial Hospital. The safeguarding of the liberty of the subject seems to be little heeded, and a patient can be conveyed to it with only a line from a doctor. No thought is given to advising the hospital authorities beforehand that a patient is coming, and often no history whatever of the case is furnished. The Medical Superintendent, however, informs me that this matter is to be remedied at once, and that the present year will see the manner of commitment more in consonance with the modes adopted in other civilized countries.

Ontario, as the wealthiest of the Provinces, has, of course, been able to outstrip the others, and in its care of the insane has always endeavored to keep up with the advance of science. Its asylums are State institutions in the fullest sense of the word. In the majority of cases the patients are maintained entirely at Government expense; in other cases, where able to do so without hardship, the friends are charged a rate that covers the bare cost of keep.

While all its hospitals are good, Rockwood is certainly the foremost, ranking to-day among the most advanced institutions for the treatment of the insane in America. Whether it be that its presiding officer has a more persuasive tongue and so can better influence the Government, I cannot say, but assuredly it has accessories that are elsewhere lacking, to-wit, a beautiful nurses' home and several small cottages for the segregation of tuberculous patients. The varieties of employment provided for the patients are there, as they should be, numerous and diversified, and physical culture classes are one of the features of the establishment. In addition, those who have a taste for music are instructed in it under a qualified teacher, and there is also a school modeled after that in the Utica Asylum. At Rockwood, too, it is worthy of record, was established Canada's first training school for asylum nurses, and the first separate building, or infirmary, on the continent, for the treatment of lunatics afflicted with additional ailments.

Prince Edward Island has a Provincial hospital for its insane, but idiots and imbeciles are

sheltered in the Provincial poorhouse, those who become dangerous being transferred to the insane hospital.

In Manitoba and British Columbia the asylums are State institutions and well conducted, though, at present, sadly hampered by the constant and pressing necessity of providing sufficient room, owing to the mass of immigrants that has been flowing into those Provinces during the last two or three years. The Manitoba hospitals receive imbeciles, but idiots are sent to the Home for Incurables, also a Provincial institution, located at Portage la Prairie. British Columbia has no special provision for idiots or imbeciles. When utterly unmanageable at home they are received into the insane asylum.

The Northwest Territories, having no hospitals of their own, by special arrangement with the Dominion Government, all cases of insanity occurring in those districts are cared for in the Provincial asylums of Manitoba.

NUMBER OF INSANE.

In 1901, according to the census of that year, there were in the Dominion of Canada 16,622 persons of unsound mind, being a ratio of 3.125 per thousand, or about one in every 319 of a population numbering 5,318,606 souls, exclusive of the unorganized territories. Of these 16,622 defectives, 10,883 were inmates of asylums or other institutions, a percentage of .642 under care.

The Provinces as regards the number of their insane stood as follows: Prince Edward Island, 361, a proportion of 3.496 per thousand; Ontario, 7,552, or 3.459 per thousand; New Brunswick, 1,064, or 3.213 per thousand; Quebec, 5,297, or 3.212 per thousand; Nova Scotia, 1,403, or 3.052 per thousand; Manitoba, 464, or 1.818 per thousand; British Columbia, 301, or 1.684 per thousand; Northwest Territories, 180, or 1.132 per thousand.

The following table shows the changes indicating increased custodial care, or otherwise, on the part of the several Provinces, in the decade extending from 1891 to 1901. By this it will be seen that there has been a marked advance in all with the exception of New Brunswick, which remains unchanged:

PROVINCES.	1891. In Asylum,	1901. In Asylum,
British Columbia	90 per cent.	94 per cent.
Manitoba	55 " "	77 " "
New Brunswick	52 " "	52 " "
Nova Scotia	36 " "	71 " "
Ontario	58 " "	69 " "
Prince Edward Island	38 " "	61 " "
Quebec	50 " "	58 " "
Northwest Territories (Housed in Manitoba Asys.)	..	58 " "
Canada	54 per cent.	66 per cent.

With respect to custodial care, British Columbia ranked first, having under care, at the close of 1901, no less than 94 per cent. of the total number of those mentally incapacitated. Manitoba came next, with 77 per cent. in safe keeping. Nova Scotia stood third, with 71 per cent. sheltered. Ontario was fourth, with 69 per cent. in asylums. Prince Edward Island was fifth with 61 per cent. provided for. Quebec and the Northwest Territories were equal, with 58 per cent. under care, and New Brunswick was eighth, with 52 per cent. housed.

INCREASE OF INSANITY.

In spite of the provision made for the care of the insane, from every Province comes the cry for additional accommodation. Year by year the number of lunatics, imbeciles and idiots to be supported and cared for by the State is being largely augmented, and it has become a burning question whether something cannot be done to lessen an evil which imposes upon the community an enormous load of taxation for the maintenance of a large and constantly increasing multitude of those mentally afflicted. Canada, in common with the rest of the civilized world, has of late years shown a decided increase in the percentage of her insane population. Of course it is easy to be led astray by statistics compared without just qualification. The very agencies created for the care of the insane lead to an apparent increase in their number. With well-appointed asylums, conducted on enlightened lines, aided by Government grants and private charity, hundreds of patients who might otherwise be uncounted, leave their homes to swell the enumeration of the insane. Still, with all allowance made for this, it is the consensus of opinion that insanity is on the increase in Canada as elsewhere. That such is the case is fully borne out by the census returns, which, though lessened in validity by the fact that the figures they furnish are in great measure dependent on voluntary information, are yet in this case a fair index of the true state of affairs, because any false statements made would be in the line of lessening the number of defectives. From this source we find that, while in 1891 there were 13,342 insane persons in a population of 4,719,893, in 1901 there were 16,662 in a population of 5,318,606, being an increase, in ten years, of nearly twenty-five per cent. in the number of lunatics, whereas the increase of the total population was less than thirteen per cent.

The causes of this increase are manifold. The methods of modern life and the modern race for wealth undoubtedly play an important part in it. Our high-pressure civilization does not come to us without attendant woes. With the change and increased comfort in the mode of life of the great bulk of the people, their susceptibilities have been augmented, and their nervous systems have been laid more open to the unkind influences of material and moral forces. But while these and other causes play a part in the production of mental disorder, it is a small one in comparison with that played by heredity. From time immemorial it has been recognized that the great predisposing cause of insanity is hereditary taint, and as time rolls on and we are able to make more careful

inquiry into the influence of hereditary predisposition, the truth of this old-time belief becomes more and more evident. Unfortunately, we are not in a position to say exactly what amount of the mental obliquity met with is due to transmitted weakness. The statistics of heredity vary widely, and this variation is chiefly in direct ratio to the prevarication practised by the relatives of the insane. Not one of us but is well acquainted with the way in which people, even in the lower ranks of life, endeavor by every means to keep us ignorant of what they consider to be a stigma on the family. Almost every authority on mental diseases has commented on this, one writer going so far as to compare the difficulty experienced in getting at the truth in such cases to that which might be expected in dragging from an erring woman a confession of her frailty. Why brain disease should be regarded as more disgraceful than disease of the lungs or any other organ of the body, or why the fact of insanity being in a family should be looked upon by the public as tantamount to an acknowledgment of criminality, is hard for us to grasp. Such, however, is the fact, and until the masses are educated out of such erroneous beliefs, friends will continue to lie about their antecedents most unblushingly. Often I have known cases where the relatives have positively asserted that there was no trace of insanity in their family history, and often I have afterward discovered that it had been well marked for generations. I well remember a lady, widely known for her Christian principles, coming to see me about receiving her daughter as a patient. A prognosis in the case was of importance, and I was asked to give as definite a one as possible. Naturally I asked as to any possible hereditary taint. My lady was firmness itself in her denials. In the course of further conservation, however, she happened to mention that her brother, who had been very fond of the insane girl, was dead, and added, "Perhaps it's as well after all that he is." It struck me at once that there must be something behind this expression of opinion, and my question, "Why so, Madam?" elicited the answer, "Well doctor, you see for over a year before my brother shot himself he was always worrying about Mary's future welfare." Needless to say the hospital registers showed heredity as a definite predisposing factor in the case.

But it is unnecessary that I should dwell upon the question of heredity as a cause of the increase of insanity. It and the marriage question were fuly and ably discussed by Dr. Blumer in his presidential address delivered at Washington two years ago. I shall but strengthen, if that be possible, what was then said, by a quotation. It is from an address on the prevention of insanity given by Dr. G. F. Blandford, as President of the Psychological Section of the British Medical Association, in 1894. On that occasion Dr. Blandford stated: "I have long been of the opinion that insanity is to be prevented chiefly by limiting the propagation of this most fearful disease through the union of affected persons. I am convinced that the only way to really diminish and finally stamp out insanity is by so educating public opinion, that those who have been insane or are threatened with insanity, shall, in the face of such public opinion, abstain from bringing into the world children who must certainly contain in them the potentiality of insanity, and so will hand on the heritage from generation to generation till the race dies out."

(To be Continued.)

MEDICAL PROGRESS.

MEDICINE.

Bright's Disease.—Bright's disease, according to A. C. Croftan (*Journal A. M. A.*, June 24), is a toxemia presumably of intestinal, and, by implication, of hepatic origin, involving, primarily, the cardiovascular apparatus, and secondarily, many organs of the body, including the kidneys. Causal treatment, therefore, in his opinion, must be directed toward the digestive disorders that underlie most causes of the disease. In some cases, however, there are, he believes, obscure metabolic perversions, hereditary or neurotic, it may be, that we do not understand, and this class is less manageable and its treatment is necessarily only symptomatic. Symptomatic treatment is not, however, the conventional treatment of the kidneys, but the treatment of the heart and arteries. When nephritis is established, it of course calls for treatment, but nephritis may not occur till late in the disease. The general measures of maintenance of the nutrition by regulated diet and the avoidance of nervousness, care, worry and fear are naturally of paramount importance. Croftan advises the use of intestinal antiseptics, sulphocarbolate of zinc, sodium glycocholate and organic peroxides, a number of which are sold under various trade names, and which, he thinks, are useful in small doses, together with bismuth as a test for the presence of sulphur compounds in the feces. When the stools are not colored black by bismuth sulphide, it is an indication that the intestinal antiseptic is given in sufficient amount to check the putrefaction of albumin, and in most cases the indican and other aromatic urinary ingredients also will have disappeared. Small doses of digitalis, one drop of the tincture, t.i.d., are useful in rendering the heart less susceptible to the disturbing stimulation of circulating toxins, and may be given without danger of impairing the power of the heart to respond to larger doses in emergency. Schott's exercise treatment is very useful for strengthening the heart in Bright's disease when myocardial changes threaten, and far better than large doses of digitalis or other cardiac tonics. For reducing blood pressure nitroglycerin, or better, erythrol tetranitrate, is the orthodox remedy and can be kept up for a long time. Continuous vasodilatation, lowering blood pressure in the kidneys, reduces the albuminuria and enables the renal epithelium to regain its tone and to resume its functions. Other measures that aid are hot baths, rest in a warm bed and judicious life in a warm, dry climate, all favoring relief of arterial tension and rest to the heart. Croftan condemns kidney decapsulation as irrational in Bright's disease. In acute nephritis underfeeding is advisable, but in chronic cases the daily amount of feeding, expressed in caloric values, should

be inversely proportionate to the presumed duration of the nephritis. There is also no reason why a mixed diet may not be allowed in these cases, excluding only such foods as produce substances difficult of elimination by or irritating to the kidneys. A milk diet also is good in the acute disease, but injurious in chronic cases, and the excessive water drinking so often advised, he states, is irritating to the kidneys and injurious to the overtaxed cardiovascular apparatus. Sweating a nephritic patient may be of some value in relieving the patient of excess of water which the kidneys can not dispose of, but giving much water at the same time is irrational. The restriction or withdrawal of chlorides, on the other hand, is both practically and theoretically useful.

The Manner of Infection in Cerebrospinal Meningitis.—A valuable pathological study, based on a series of 30 autopsies, has been made by WESTENHOFFER (*Berl. klin. Woch.*, June 12, 1905). The results of his investigations seem to show that the point of entrance for the infectious germs is the posterior nasopharynx, and particularly the pharyngeal tonsil. The meningitis is at first invariably a basilar process and centers in the region of the hypophysis. It takes place in a lymphogenous manner. The involvement of the cranial cavity is analogous to the inflammation of the mucous membrane of the accessory sinuses connected with the nasopharyngeal space. A meningitis of this type never, or at least very rarely, occurs by the extension of an inflammatory process from the ethmoid cells. The writer claims that both adults and children who happen to be attacked by this disease show distinct evidences of the so-called lymphatic diathesis. The disease is due to the inhalation of the infectious organism and its prophylaxis is essentially hygienic. The meningococcus Weichselbaum-Jäger is found in the majority of cases, although it is by no means decided that it is solely and alone the cause of the disease. The fact that many other cocci are found with this coccus, either alone or in a mixture, makes it probable that all of these bacteria play only a secondary rôle in the etiology of the disease and that the real etiological factor has not yet been discovered. This seems to be analogous with the streptococcus infection in scarlatina.

Quinquaud's Phenomenon.—Recently Quinquaud described the following symptom as characteristic for alcoholism: The fingers of the patient to be examined are spread out and then placed perpendicularly upon the palm of the physician. After several seconds a decided crepitation will be felt by the latter, if the test is positive, even where the joints are absolutely normal. M. HERZ (*Münch. med. Woch.*, May 30, 1905) has investigated the symptom in a large number of cases and concludes that the crepitation does not come from the joints but results from slight lateral motions of the tendons in their sheaths, set up by the involuntary muscular contractions so common in alcoholics. The symptom is present to a slight extent also in normal individuals.

Medical Phases of the Immigration Legislation.—V. G. HEISER (*Med. Rec.*, June 17, 1905) says that the act of 1891 was the first under which immigrants suffering from certain mental or physical conditions were absolutely excluded, and the law provided for the first time for the medical examination of all arriving aliens. The medical features of the immigrant legislation consist of two simple divisions, the first for those suffering from afflictions for which they are absolutely excludable and the second for those suffering from conditions which may cause them to be likely to become a public charge. From year to year it has been found desirable to augment the list of affections that come under both divisions of the law, and the last act pertaining to immigration, passed in 1903, still further increased the list of absolutely excludable diseases. In discussing the maladies on the absolutely excludable list which give rise to the greater number of rejections, the author says that trachoma easily ranks first, and favus is also of importance. Leprosy, active syphilis, and cases of tuberculosis with bacilli in the sputum, are also on the list. Epileptics, idiots, and the insane are specifically mentioned by law. The second class of diseases is a very long one and includes such conditions as valvular disease of the heart, hernia, chronic rheumatism, nervous affections, malignant tumors, defective eyesight, senility, etc. Persons suffering from temporary conditions are cared for until well in hospitals at the expense of the transportation company bringing them in. The author is in favor of the enforcement of the medical clauses of the immigration law in the Philippines, both from a humanitarian and a practical standpoint.

Menstrual Jaundice.—A few cases of jaundice recurring with every menstruation are reported, and there is a tendency to look upon this condition as a separate disease. L. METZGER (*Münch. med. Woch.*, June 13, 1905) has observed and previously described a case and now is so fortunate as to give the autopsy reports, as the patient died of an intercurrent disease. A calculus was found wedged in the common duct which seemed to obstruct this passage completely, yet during life probably permitted the escape of sufficient bile to prevent stasis. With the congestion of the abdominal organs incident to menstruation, a true biliary stasis set in, so that some of the bile was readily absorbed by the lymphatics and icterus developed. Probably most cases reported depend on a similar cause, though there are no other autopsy records.

Intestinal Peristalsis.—ISAAC OTT and J. F. ULMAN (*Journal A. M. A.*, June 17) have studied the effects of various agents on the intestinal movements, confirming Ott's earlier findings that adrenalin arrests the pendulum movements and causes relaxation of the longitudinal musculature, and that splenic extract increases the peristaltic action both in frequency and force. Infusion of the pancreas was found to relax the muscles and slow the movements of the intestine, at the same time increasing the force of the contraction. Experiments were also made with other animal extracts, ovary, testes, parotid and mammary glands, pituitary, thyroid, brain and spinal cord, but they had no marked effect on intestinal peristalsis. The thymus seemed occasionally to increase its force. Sodium citrate increased the force of the contraction, which was slowed, weakened, and made irregular by the addition of calcium chloride, thus agreeing with MacCallum's observations. It is suggested, therefore, that calcium is indicated, in agreement with MacCallum's and with Loeb's theories of the action of the calcium ions, in persistent diarrhea of nervous and hysterical cases. A series of experiments were made testing the effects of various drugs, atropine, eserine, nicotine, muscarin, pilocarpine, strychnine, curare, morphine, etc., on intestinal peristalsis and also on their antagonistic action to each other, which are discussed in detail, especially their relations to the nervous supply of the intestine, and the conclusion is deduced that the automatic movements of the bowel are not myogenic, but are dependent, as shown by Magnus, on Auerbach's plexus. The action of certain organic bodies, bile, albumoses, peptones, leucin, tyrosin, was also tested; they all increased the force, and most of them also the frequency of the intes-

tinal movements. It is evident, the author remarks, that the products of proteid digestion are active stimulants of peristalsis. A good digestion predisposes to regular evacuation of the bowels, and this accounts for the habitual constipation of dyspeptics.

The Preservation of the Urine.—A large number of experiments (140) with different preservatives in urines of various compositions have been made by J. B. Ogden (*Boston Med. and Surg. Journ.*, June 22, 1905), as the result of which he concludes that boracic acid is the most practical urinary preservative when used in the proportion of 5 gr. to 4 oz. of urine. Formaldehyde solution should only be used by the physician or a responsible person. It should be remembered that one drop of the solution will preserve about a pint of urine for a week and that a drop can be used in 4 oz. of urine without harm. Other substances than these two should not be used, as they either interfere with chemical tests and microscopical examination or are ineffectual as preservatives.

NEUROLOGY AND PSYCHIATRY.

The Prevention of Shock.—Assuming that surgical shock is due to the functional impairment or even exhaustion of the vasomotor centers through afferent impulses set up by trauma, exposure, etc., G. W. Crile (*Journal A. M. A.*, June 17, 1905) discusses the means of its prevention, as well as that of hemorrhage, in various surgical procedures. Aside from the impulses mentioned, there are a number of important accessory causes to be reckoned with, he states, including psychic emotions, such as fear, hemorrhage, cold, acute and chronic infections, anemia, cachexia, etc., and age and sex. One or more of these is met with in every case. In operation on the head he emphasizes the importance of giving particular attention to circulatory conditions, of reducing to a minimum the exposure and manipulation of the meninges and the brain, and of having as complete control of the blood pressure as possible. He has clamped the carotids in 41 cases without unfavorable effects, and thinks it a valuable method of controlling hemorrhage in certain cases, together with the head-up posture and the use of the pneumatic rubber suit. In laryngeal operations, the danger of cardiac collapse can be avoided, he says, by previously giving a physiologic dose of atropin or by the local use of cocaine. In minor intrathoracic operations, when there is hampered respiration and seriously impaired circulation, Crile advises local anesthesia, and if further measures are needed they can be carried out later, after the patient's forces are recruited, under surgical anesthesia. The supreme importance of the respiratory action on the circulation must be kept in mind, as well as the danger of interfering with the large venous trunks. In abdominal operations, shock is in direct ratio to the trauma and exposure. In all time-consuming, exacting technics, he advises, no special contraindication existing, the use of morphine-ether anesthesia: either during the abdominal incision and the exploration and development of the operative field, morphine alone, with slight or no ether accessory during the technic proper, and ether again in closing the abdominal wound. The region around the diaphragm is much more shock-producing than the lower abdominal tract, and he cautions the anesthetizer against being misled by the expiratory moan in these upper abdominal operations and overdoing the anesthesia. In anemia, cachexia and acute infections, the available vitality must be most carefully estimated and methods safely within its limits be adopted. The prevention of shock in operations on the extremities is narrowed down to two or three simple propositions, the minimum loss of blood and the least manipulation and force, and the "blocking" of the nerve trunks by intraneural injections of cocaine or eucaine. Crile summarizes his views as follows: "Every tissue and organ has a more or less individual shock-producing value and must be individually considered. The amount of shock produced by a given trauma varies according to the amount and special quality of its nerve supply and the number and intensity of the afferent impulses originated by the injury or operation. Cocaine or eucaine may wholly 'block' these shock-producing impulses. When one or more of the accessory causes of shock are present the highest possible tax is laid on the surgical judgment of the operator. A precise technic offering a minimum of exposure and trauma, grafted on a comprehensive grasp of all the factors entering into the operative consideration, are the ideals for which we must strive."

Neurasthenia Among the Laboring Classes.—Excellent facilities for the study of this subject are presented in one of the large German sanitaria, which have been studied by Leubuscher and Bibrowicz (*Deut. med. Woch.*, May 27, 1905). It was formerly believed that this complaint was relatively infrequent among this class, but this conception must now be revised. This may, of course, be due to the fact that the lower classes are now under more systematic medical observation, at least in Germany, than formerly, but the writers are rather inclined to the belief that it is produced by our changed social conditions. The work itself and the conditions under which it is performed are different. Either greater excitement or extreme monotony characterizes it. The struggle for existence often induces longer hours of work, and another important rôle is played by the disparity which exists between the intellectual equipment of the workmen, especially in the large cities, and the actual value of his work. Thus, the typesetters, often fairly well educated, pursue an occupation which is not only fatiguing but monotonous. Among those workmen where manual labor is of such a nature as to be productive of some degree of enjoyment, neurasthenic conditions are rarely to be found. The majority of cases were noted between twenty-five and forty-five years of age.

The Hypochlorization Method of Treatment for Epilepsy.—This method, also known as the "salt poor diet," has been in use at the Massachusetts Hospital for Epileptics for several years, and consists of the substitution of sodium bromide for the chloride in the patient's food. The claim is made that the bromide salt is rapidly absorbed and becomes part of the body tissue when administered in this way, and only about half the usual quantity is necessary. A. Morton (*Boston Med. and Surg. Jour.*, June 15, 1905) reports on 24 patients who had been on this treatment for two and a half years. The diet consisted mostly of milk, eggs, bread and butter, gruel and soups, to which enough sodium bromide was added to amount to about 15 grs. per day. Sodium chloride was not, however, entirely excluded. The results were encouraging, the number of attacks decreased markedly and the patients were much quieter. Later on about one hundred other patients were put on the same treatment, who were getting a plain mixed diet. The greatest decrease in the number of convulsions occurred when the

women were taking about 35 grs. daily, but they objected to the salt and the ordinary sodium chloride was then mixed with it. An immediate increase in the convulsions was noted, although the number was still below the average seen with the regular diet. The writer concludes that this method controls the convulsions and requires only about one half the amount of bromide usually given. It has little or no effect on the general nutrition of the patient. It is apt to cause constipation. It does not furnish enough salt to supply the patient's craving. It may be used with success with intelligent patients, but is practically useless in the middle grade of epileptics. A modified salt poor diet, in which about equal parts of sodium chloride and bromide are used in the food, may be used to advantage with idiotic and demented patients if their diet can be controlled absolutely. Bromism was found to be comparatively rare.

THERAPEUTICS.

Radium in Cancerous Growths.—REPMAN presented two patients before the Society of Neuropathologists and Psychiatrists at the Moscow University (*Prakt. Vrach*, March 26, 1905), one of whom had a cancerous ulcer at the inner angle of the right eye. The treatment began December, 1903, weekly sittings, duration one hour. The bromide of radium was used; improvement was noticed after every application. For some reason the patient discontinued treatment after six weeks with the result that the condition became worse and the edges of the ulcer that were in a fair way of cicatrization reopened again. Treatment was instituted again with the result that the ulcer that resisted obstinately treatment for five years is now healed completely. The second case was that of a cancer of the breast for which the patient was operated on twice—nine and three years ago. In this case applications were made three times a week, and after twenty-six sittings the tumor seems to have disappeared and the patient regained perfect control of the shoulder-point (tumor located under left clavicle).

Relation Between Chemical Constitution and Diuretic Action.—Among the large number of diuretics, not the least important are caffeine and its numerous homologues. It has seemed almost imperative that a careful comparison of these bodies be made, with the idea of linking the diuretic effect to some particular molecular group or aggregate of groups. P. BERGELL and P. F. RICHTER (*Zeitsch. f. Exp. Pathol. und Therapie*, Vol. 1, No. 3) compared a group of compounds which are hemalogues of caffeine, in which one of the three methyl groups is substituted by an ethyl radicle. These are, therefore, three isomeric compounds having a purin nucleus. Caffeine is trimethylxanthin, and the other compounds are ethyltheobromin, ethylparaxanthin, and ethyltheophyllin. All of the three latter have a marked diuretic effect, but ethyltrophyllin has an effect less than that of ethyltheobromin. In substituting the ethyl-radicle and other alkyl radicles, such as propyl, butyl and amyl, the authors find that these all have a diuretic action, but this is not as marked as that of the ethyl compounds. The length of the side-chain diminishes the diuretic effect.

Rectal Injections of Large Doses of Sodium Salicylate in Cerebrospinal Meningitis.—A. SEIBERT (*Med Rec.*, June 17, 1905) believes that the administration of large doses of sodium salicylate, given by rectum to avoid gastric disturbances, forms the most satisfactory plan of treatment for this disease. Tapping the spinal canal by lumbar puncture may be of great value in some cases by relieving pressure, but it is not curative, and injections of antibacterial fluids into the spinal canal never reach the organisms they are intended to destroy. An effective remedy for cerebrospinal meningitis must travel the same road which the infectious germ has taken through the blood current. Salicylates have been used before in this condition, but in doses that are entirely too small. Five cases are described in which the use of large doses of the drug appeared to exert a very powerful curative effect. According to the age of the patients, sodium salicylate was given by rectum in fifteen grain doses dissolved in a tablespoonful of water, at intervals of from one to eight hours, the salicylization being gradually reduced as improvement followed. In one case, that of a boy aged four and a half years, who had had the disease for seven weeks some months previously and presented numerous sequelæ such as contractures, hemiplegia, strabismus, etc., very remarkable improvement followed the treatment, though it was begun only at so late a date. In a tuberculous case the salicylate did not appear to be effective. The author urges those who have charge of large numbers of cases of the disease to give a trial to this plan of treatment which he is convinced is of value in all cases where serous, not purulent, exudate forms.

Treatment of Inoperable Cases of Malignant Disease of the Orbit.—C. S. BULL (*Med. Rec.*, June 24, 1905) says that while malignant disease of the orbit which has apparently not originated in or involved the adjacent sinuses should be extirpated by the knife as soon as possible, the consensus of opinion seems now to be that when the neighboring sinuses are involved a complete removal of the growth is impossible, a recurrence of the growth is certain to appear, and with each repetition of the operation the return of the disease is hastened, and the life of the patient is by just so much shortened. On the other hand, in view of what we actually know of the action of the X-rays, it would seem not only wise, but our duty, after such operation by the knife as may be necessary, to expose the parts a certain number of times to the X-rays, in order, if possible, to destroy isolated cells or aggregations of cells in the neighboring parts which cannot be reached by the knife. It is stated on good authority that there has been a marked diminution in the death rate following operations on patients so treated. The author's experience, based on his own cases, has satisfied him that the X-rays are of value in removing the pain so constantly complained of, and he, therefore, believes that the treatment is to be recommended in inoperable cases because it relieves much of the patients' suffering, and thus may prolong their lives. It would seem that the more recent and superficial a malignant growth is, the more rapid and favorable are the results from X-ray treatment, but it takes time to prove the ultimate good results. The author presents the detailed reports of ten cases from his own private practice, in which the X-ray treatment was employed after excision by the knife. Of these ten cases, two were very much improved if not apparently cured, and of these two one was an epithelioma and the other a carcinoma. The remaining eight cases, in which no demonstrable effect was produced by the X-rays, were all sarcomata. In all but one of these the pain was more or less effectually relieved. No untoward results of the action of the rays were observed in any of the cases.

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A WEEKLY JOURNAL

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THE PHARMACOPOEIA OF 1900.

On September 1, 1905, the Eighth Decennial Revision of the Pharmacopœia of the United States of America becomes the official guide to physicians and pharmacists of this country.

The present edition has been unduly delayed. The reasons are not far to seek, but not the least was the untimely death of Dr. Charles Rice, chairman of the Revision Committee, at the very outset of the labors of the Committee on Revision.

It has been a standing reproach to the medical profession in general that they have taken little interest in this important work, but fortunately this is fast becoming a matter of history, and the time we hope may not be far distant when the Pharmacopœia will be a living part of every practitioner's armamentarium. The flagrant features of the patent-medicine evil, so far as it is fostered by the physician himself, will cease to exist when he is better acquainted with this book.

The present edition represents in the aggregate an immense amount of labor. No one who has not served on the Revision Committee has the slightest conception of the gigantic task involved in putting this work through, and the profession little realizes the debt that it owes to the sacrificing members of this committee. To utilize it to the full is to express in small measure the sense of that obligation.

It is impossible to more than indicate some of the important additions and changes that are here found when compared with the edition of 1890. We hope to present from time to time some of these to our readers. A few of the more striking features may be mentioned and attention further called to a useful Bulletin of the Public Health and Marine Hospital Service No. 23, under date of August 1, written by Drs. Reid Hunt and Murray Galt Motter on the changes found in the new edition.

We would call particular attention to two most important changes, viz.: Tincture Aconite is now 10 per cent., having been reduced from 35 per cent., and Tincture Strophanthus has been increased to 10 per cent. (formerly 5 per cent.), thereby creating a source of possibly grave error on the part of either prescriber or dispenser, unless the prescriber plainly states which tincture he desires, by appending the title U. S. P. 1900 (or U. S. P. 1890, should he desire the stronger preparation). These remarks apply equally to several of the other tinctures, notably:

	Per Cent. Now.	Per Cent. Formerly.
Belladonna leaves	10	15
Cannabis indica	10	15
Colchicum seed	10	15
Digitalis	10	15
Gelsemium	10	15
Hyoscyamus	10	15
Lobelia	10	20
Calabar bean (Physostigma)	10	15
Stramonium	10	15
Veratrum	10	40
Syrup ferrous iodide	5	10

Tinctures Nux Vomica, Opium and Opium deodorized, remaining as before, 10 per cent. These changes are in accord with the recommendations of the Brussels conference as to uniformity of strength of potent remedies.

Among other changes which will prove of interest, the admission of Phenacetine, Sulfonal, Trional, Aristol, Urotropin, are to be noted. They should be prescribed for by their official names.

Several new galenical preparations are important: Cataplasm of Kaolin, Elixir, Glycerole and Syrup of the Phosphates of Iron, Quinine and Strychnine, Emulsion of Turpentine, Antiseptic Solution, Compound Solution of Cresol, Solution of Sodium Phosphate, Compound Laxative Pills (A. S. B. and I.), Tincture of

Gambir Compound (to replace Tinct. Catechu Co.), as well as several others.

For the first time, and a highly commendable innovation, dosage is admitted to the Pharmacopœia under the following distinct declaration. "That neither this Convention, nor the Committee of Revision created by it, intends to have these doses regarded as obligatory on the physician or as forbidding him to exceed them whenever in his judgment this seems advisable." Anti-diphtheritic serum, and also Desiccated Suprarenal Glands and Desiccated Thyroid Glands, are new.

Several changes in nomenclature are manifest, Acidum Arsenosum and Acidum Chromicum becoming Arseni Trioxidum and Chromii Trioxidum. The name Acidum Carbolicum has been dropped, "Phenol," the more correct chemical name, replacing it.

Cocaine, Morphine, and Quinine Hydrochlorates now become Hydrochlorides, and Sodium and Zinc Sulphocarbolates are now respectively Sodium and Zinc Phenolsulphonate.

The cumbersome nomenclature of the fluidextracts is simplified and they are now all written "Fluidextractum," thus avoiding the possibility of an error on the dispenser's part should the "Fluidum" be omitted by the prescriber.

These constitute but a few of the important modifications; of the refinements of tests, standards for purity, simplification of assay processes, standardization of potent remedies, etc., we cannot at this time speak. The work is a notable one, and the Committee of Revision is to be congratulated on the completion of their task. The Eighth Decennial Revision is an honor to its compilers.

NEWER IDEAS ON THE FUNCTIONAL TOPOGRAPHY OF THE BRAIN.

In the quarter of a century that has elapsed since Fritsch and Hitzig first worked out the localization of motor functions in the cerebral cortex, although but a comparatively small part of the convexity of the hemispheres of the cerebrum has been explored, the facts discovered have certainly been of incalculable value from the viewpoints of diagnosis and treatment. The attention of investigators has been mainly riveted on the cerebrum, and to this has been accorded, at the expense of other parts of the brain, an influence altogether too predominant in the activities of this organ. For it appears in the light of the most recent investigation that other parts of the brain are likewise the seat not only of important motor functions, but also of the highest psychic activities.

It is well known that among the lower animals deprivation of the cerebrum does not abolish some of the very complicated motor mechanisms. Thus, in birds the centers that control the intricate movements of the eyeball are located in the corpora quadrigemina. A number of observers, among whom may be mentioned Sherrington, have noticed that in lesions or destructions of the cerebrum a well-marked muscular rigidity occurs. This is supposed to originate from centers situated in the mid-brain, which are normally the source of motor impulses and whose activity is under the inhibitory control of centers situated in the cortex. This form of muscular rigidity is observed in many diseases involving the cortical region of the cerebrum and the path leading to and from it.

F. H. Thiele (*Journal of Physiology*, July 13, 1905) has discovered in the posterior part of the optic thalamus, centers which, he believes, control the coordinated movements of walking. The nervous impulses emanating from these centers are independent of the pyramidal tracts, for the complete degeneration of the latter does not affect the functional efficiency of these centers. There are other centers in the optic thalamus which exert an inhibitory influence over the motor cells in the spinal cord.

This same observer also maintains that the cerebellum is the seat of important motor mechanisms. The sum total of the scant knowledge which until quite recently has been garnered from the study of the functions of the cerebellum, has been that this no insignificant part of the cranial contents exercises a coordinating influence over muscular contractions, or, in other words, contains the centers of equilibrium. This knowledge has been derived chiefly from clinical observation. Thiele has found that the cerebellum through its peduncles governs the skeletal muscles and is capable independently of producing movements, particularly those of the trunks and girdles. The author concludes from his experiments that movements of great complexity, such as those of progression, can be carried out in the absence of the cerebral cortex altogether. It is noted that the muscular mechanisms centered in the optic thalamus are of

wide spatial distribution and employ the limbs of both sides and the trunk, while the cells in the cerebral cortex control only limited groups of muscles.

Of still greater interest are the results of the experiments recorded by G. Pagano (*Arch. Ital. de Biol.*, May 10, 1905). This author was able to map out distinct areas in the cerebellum, and to show that these are in relation with movements of definite parts of the body. Although the results of his work leave room for considerable amplification, he has actually succeeded in proving the existence of cerebellar localization. This has already been foreshadowed by other observers, notably by Weir-Mitchell, thirty-six years ago, by Nothnagel, and by Ferrier.

The author's experiments were performed upon dogs, and his technic was so novel as to deserve mention. In order to excite the cerebellar cortex, he injected into it small quantities of a 1 week solution of curare. The dogs were not under the influence of any anesthetic. These injections were shortly followed by contractures of definite parts of the animal's body, particularly of the limbs. In this way the author was able to map out distinct motor areas of the vermis, or the median lobe of the cerebellum, and of the contiguous parts. The character of the movement differs markedly from that obtained by a similar stimulation of the cortex of the cerebrum. In the latter case the curare causes clonic contractions of the limb. In the cerebellum, the stimulation causes a steady contraction or attitude, which is most frequently one of adduction or retraction of the limb.

The movements evoked by stimulation of the cerebellum differ also from those produced by stimulation of the cerebrum, in being chiefly homolateral. In the former case, as in the latter, there is a gradual merging of one area into another. One remarkable series of results was obtained by stimulation of the anterior extremity of the vermis. This gave rise to unmistakable psychical manifestations in the animal. It became possessed of maniacal fury, which was intensified by the slightest tactile, visual, and auditory stimuli, such as a breath, a gesture, or a whisper. This condition of the cerebellar cortex, which has thus been proved to be the seat of psychic centers, has been termed a veritable psychic strychninism. This is soon succeeded by epileptiform convulsions, then by a period of quiescence, and at last by death. There is no doubt, therefore, that the anterior part of the vermis contains centers whose stimulation leads to a state of mental exaltation.

That the cerebellum shares with the cerebrum the distinction in being the seat of psychic activities might have been inferred from previous observations on animals suffering from cerebellar lesions, in which vertigo and mental apathy had been noted, and in human victims of disease of the cerebellum, in which a certain intellectual decadence had been frequently observed.

One important difference between the motor centers of the cerebellum and those of the cerebrum is that the former are deeply situated, while the latter are placed near the surface. The question arises as to whether the cerebellum is normally capable of initiating mental processes, however subordinate these may be, or whether it produces a functional exaltation of centers situated elsewhere, or whether the phenomena of psychic excitation are the result of stimulating acoustic paths which are intimately connected with the cerebellum. The answer to this question awaits future investigation.

SUGGESTIONS IN TUBERCULOSIS.

In the midst of the present reduction in the mortality from tuberculosis there are certain features that are not near so encouraging as might be expected from the improvement of statistics. Notwithstanding advances in knowledge, and especially with regard to the early diagnosis and management of tuberculous cases, not a few persons suffering from tuberculosis fail to have the disease process stopped by treatment even when carried out very effectually, but go on to increasing lesions and ultimately to fatal termination. Not infrequently it is said with regard to these patients that they lack resistive vitality. This is, however, an entirely hypothetical explanation, and so indefinite as to give no help to the practitioner. There is a growing feeling, moreover, in the minds of many specialists in tuberculosis that there are specific types of the disease which run very different courses from others, some of which are comparatively mild in character, while others are decidedly virulent.

Not that the element of individual resistance can be entirely eliminated in the study of tuberculous patients. Every one who has had much experience with tuberculosis can recall cases in

which the infection was traceable from one individual to another, and yet ran a very different course in each.

It has been the custom, especially of late years, to consider that the more virulent forms of human tuberculosis were more closely related to bovine tuberculosis than to other forms of the disease. If the observation of Dr. Woods Hutchinson, reported at the recent meeting of the American Medical Association, should be confirmed by others, and the suspicion of the nature of the affection observed be justified by subsequent observers, this opinion must have added credence. At the State Sanitarium not far from Portland, Oregon, Dr. Hutchinson has had under observation some eighty patients. Of these considerably more than one-third suffered from a very severe form of tuberculosis, which went on rapidly to a fatal issue. Nearly all of these patients have been associated for a considerable period with the care of cattle on the mountainous ranges of the State. Notwithstanding their outdoor life at considerable altitudes, they had acquired this virulent form of tuberculosis, the bacilli of which proved, on careful investigation, to be of the short, thick variety of the microorganism which is often seen only in connection with bovine tuberculosis.

Whether there are intermediate types of the tubercle bacilli lying between the human and bovine forms, yet virulent for man, is, as yet, under discussion. It seems probable, however, that many of the individual peculiarities of the disease could be best explained by means of some such variation of virulence. It has been noted over and over again that certain persons do not do well at the sea level, while others suffering from apparently similar forms of tuberculosis are unfavorably affected by altitudes. Whether there may not be some difference in the type of microorganism accountable for this remains to be investigated. It would certainly be of the greatest possible help in the treatment of tuberculous patients if, by means of the microscope, it could be recognized whether altitude or sea level were the best climatic condition for such patients from the very beginning, as actual observation is the only source of knowledge in this matter, and in this way at times very valuable time is lost at a stage of the disease when every day counts as regards the ultimate fate of the patient.

On the other hand, a very curious reflection is emphasized by some of the cases reported in the Northwest. It is well known that our American Indians, notwithstanding their outdoor life in tents, succumbed very promptly to tuberculosis in very large numbers whenever exposed to the disease. Tent life has become such a shibboleth in the treatment of tuberculosis by the outdoor method that it is surprising that this Indian experience has not made more physicians and patients realize that it is not the outdoor life alone, but the coordination of all proper hygienic conditions, that constitutes the essence of the modern successful sanitarium method of treating tuberculosis. The Indians were lacking in nutrition and in hygienic precautions against reinfection, hence the enormous death-rate. Undoubtedly, however, there was besides this a lack of resistive vitality.

In civilized communities the fact that, as the Germans say, we are all of us somewhat tuberculous, a fact that is demonstrated by the finding of tuberculous lesions in the lungs of more than three-fourths of those who die from other diseases and come to autopsy, seems to furnish to most of us a definite protective immunity against the disease, not absolute but relative, yet of sufficient power to enable us to resist serious invasion even after infection has taken place.

It has been suggested that in the Northwest those who have been living outdoor lives out of contact with tuberculous patients have lost something of this immunity of civilization, and so seem to suffer from tuberculosis in the virulent form exhibited by the American Indian. All of which would seem to be an added argument against those who would be foolish enough to make elaborate efforts to prevent the establishment of sanitaria in the vicinity of cities for the treatment of tuberculosis with the idea that the only thing that is to be feared with regard to this disease is the possibility of infection. The problem is by no means so simple as this, and much remains to be known before even its terms can be properly stated. Meantime this oldest of diseases presents some most fascinating aspects for investigation.

Yellow Fever.—The Marine Hospital authorities assure us that they will have control of the fever situation in the South within the next month. In view of the few new foci being discovered, we trust that their optimism may not be rudely shaken

ECHOES AND NEWS.

NEW YORK.

To Avoid Typhoid.—Commissioner Darlington of the Health Department has put into a pamphlet certain information for the benefit of persons who wish to avoid typhoid fever. "Don't eat oysters in the months when typhoid is prevalent," says the pamphlet. "Neither is it good to bathe at beaches near where sewers empty. The primary rules of hygiene should be observed and carbolic acid used as a disinfectant around bathroom." It is advisable to have all well water in Brooklyn boiled. It is safer to boil all drinking water.

Improving Nassau Hospital.—Mrs. William K. Vanderbilt, Jr., has stated that she will provide a children's ward diet kitchen, dressing room and more private rooms for the Nassau Hospital at Mineola. The hospital was established through the efforts of a number of prominent residents of Nassau County and the members of the Meadow Brook and Rockaway colonies, who some years ago gave a horse show and a series of races in order to raise money for it. The improvements have already been begun. The addition is being built at the west end of the hospital. It will be about the size of the present building.

Filtration Figures.—In Health Commissioner Darlington's report to the Mayor on the question of filtration of the city's water supply, there are various comparisons of healthy cities with filtered water, with nearby towns, in which such precaution has not been taken. The most striking of these comparisons is that of Hamburg and Altona, adjoining cities, both of which take their water from the Elbe. Altona's supply is filtered. Hamburg's was not, previous to 1893. On the chart based on the statistics of thirteen years ago, in Dr. Darlington's report, the location of typhoid cases in these two cities is indicated by black dots. East of the dividing line, where the site of Hamburg is shown, the paper is black with dots. On the other side these marks can be easily counted at a glance. There is no question in Dr. Darlington's mind but that the water supply of New York should be filtered. The water sheds which supply Manhattan and Bronx extend over 360 square miles and a part of this area is within Connecticut, over which the State and city have no control. Concerning the cost of filtration, the Commissioner says that the estimates of the Commission on Additional Water Supply show that a suitable covered slow sand filtration plant can be built for the entire Croton supply of about five hundred million gallons daily for about $17,000,000 (at present wages and prices of material), with a total annual cost of operation, including interest, sinking fund, depreciation, etc., of about $900,000. The work could be completed within two years.

General Rules for Prevention of Mosquitoes.—The yellow fever scare at New Orleans has had one good effect, at least. It has caused the widespread publication of hygienic rules that ought to be observed by every owner or tenant of houses and lands throughout the country. Accepting the theory that the plague is transmitted by means of the mosquito, this advice has been tabulated and given out by the New Orleans health authorities:

"Clean out every place where water stands.

"So dispose of old tin cans, bottles, or what not, that rain cannot possibly be retained.

"Watch your roof gutters.

"Empty your rain barrel of water every week, or screen it closely with fine-meshed wire on top.

"Change the water every day in a drinking pan for dog, cat, or bird.

"Watch the watering trough near your stable.

"Fill a hole in a tree with soil packed tight, or with cement.

"In other words, get rid of, or coat with kerosene, all stagnant, standing water, and you will get rid of mosquitoes.

"If you have a playing fountain, put little fish, like minnows or goldfish, in the water, and they will eat the mosquito larvæ.

"If you have a sluggish brook or a stagnant pond near your house, spray kerosene or coal oil on the surface; this makes it impossible for the 'wigglers' to breathe when they come to the surface, and they die. The coal oil application is only necessary at the edges, and is good only so long as the oil film is unbroken."

Bearing in mind the assertion that New York is nearly as likely to suffer from the plague as New Orleans, if sanitary measures are neglected, these articles in the hygienic creed are worth preserving.

The Brooklyn Typhoid Situation.—To ascertain the causes of the prevalence of typhoid fever in Brooklyn, and particularly in the Bath Beach, Bensonhurst, Borough Park, and Bay Ridge sections, the Health Department is giving great attention to the water supply, on which, it is thought, a large share of the responsibility will fall. A house-to-house inspection of the Thirtieth and Thirty-first Wards is being made by six Sanitary Inspectors. Their object is to find out to what extent the residents are taking their drinking water from the public sources of supply, and to what extent from wells and cisterns. An investigation is also being made as to the quality of the water supply from all sources. Reports on all the phases of this investigation will probably be received by the Health Commisioner by Monday or Tuesday. The local physicians admit that typhoid is now almost epidemic in the Bath Beach and Bay Ridge districts. It was learned that for the five weeks ending last Friday forty-eight cases of proved typhoid were reported from the Thirtieth Ward alone. This record has since been growing steadily worse, and up to the present time about 300 cases have been reported, and the end is not yet. The principal causes of infection found by Dr. Berry were bathing in Gravesend Bay, overflowing cesspools, defective sewers, stagnant pools, into which the drainage of surounding districts is being collected, and wells and cisterns exposed to pollution. And his principal recommendations embody the following propositions: Prohibition of building new cesspools, inspection and enforced cleaning of existing ones, appeal for the improvement of roads, and the installation of sewers in the Bath Beach district, and for the improvement of the sewers of the Bensonhurst district; closing of public bathing establishments along the shore from Fort Hamilton to Ulmer Park, the placing of signs in conspicuous places warning the people of the danger of bathing in the bay along that district, the maintaining of a more rigid standard of cleanliness in regard to stables and general sanitary conditions in the ward. Dr. Henry V. Walker, the Chief Inspector, reports that the recomendations can not be carried out without the amendment of the present sanitary code. What is particularly wanted is a rule forbidding the establishment of new cesspools without permission from the department. Much of the trouble is the rapid growth of the Bath Beach and Bensonhurst districts, making it impossible to keep sanitary improvements on a level with the increase of population. The result is that in many houses the

same conditions exist which prevailed before the region had changed from a rural to an urban community.

PHILADELPHIA.

Duty Neglected.—Assistant Medical Inspector H. L. Sidebotham has been asked to tender his resignation. The Department of Health took the step after being satisfied that the inspector was wilfully neglecting his duties. One of the duties of the inspector was to make daily visits to certain schools; these he failed to make, but handed in a manufactured report each day.

Jail Overcrowded.—Lawyers, whose clients are suffering from the overcrowded condition of Moyamensing Prison, have pointed out that an epidemic of one kind or another may arise as a result. In order to corroborate their views and to give them better grounds upon which to work in bringing about relief these attorneys have obtained certificates from many physicians attesting to the conditions.

Young Doctors Receive License.—Shortly after the examinations, which took place in the latter part of June, there was a rumor current that the candidates for license to practise medicine under the old school would be re-examined owing to a change in the questions after they had been delivered to the examiners. The matter must have been settled in an amicable manner. Of the 466 candidates 320 passed, 56 failed, 4 were expelled for cheating, 4 withdrew and the decision was reserved for 82. The announcements were made in Atlantic City, where the papers were examined.

Benefit for Frankford Hospital.—While the politicians in the center of the city are playing a mild game of war the politicians of the northeastern section of the city are playing exciting games of baseball. The Republicans and the Democrats of Frankford have each organized a baseball team and since the organization occurred last year the one team is called the "Roosevelt" and the other the "Parker." The proceeds of the game will be given to the Frankford Hospital, consequently there was a large attendance. The proceeds are said to amount to several hundred dollars.

Bequests.—The will of Emma C. Harris, in disposing of an estate valued at $150,000, provides that it be held in trust for her two daughters and her grandchildren; but should the grandchildren die and not leave heirs the following institutions will be recipients: Episcopal Hospital, $25,000; the Home for Crippled Children, $5,000; the Home for Colored Crippled Children, $1,000; the Woman's Hospital, $2,000; the Philadelphia Protestant Episcopal Mission for two homes for consumptive men and women, each $25,000; the St. Christopher's Hospital for Children, $1,000; the Philadelphia Society for Organizing Charity, $2,000; the Franklin Reformatory Home, $2,000.

CHICAGO.

Report of Visiting Nurses' Association.—During the last month this association has cared for 853 patients and made 3,717 visits, besides caring daily for fifteen sick babies at the Fresh Air Station at Augusta and Noble streets.

Impure Milk in Illinois.—Milk conditions in Illinois towns outside of Chicago are causing a flood of complaints in the office of the Pure Food Commission. Because of the cramped facilites of the smaller cities they cannot exercise such close supervision as is possible in Chicago, and the milk now sold in some places is denounced as "rank poison." Formaldehyde is being used freely by country milk dealers, according to complainants.

GENERAL.

Diphtheria Epidemic at Port Republic.—The prevalence of diphtheria at Port Republic, N. J., has caused several of the surrounding towns to establish quarantine regulations. The disease became epidemic two weeks ago. Last week a camp meeting started in the town grove, but the health authorities feared it would help to spread the contagion and ordered it stopped.

Tropical Disease Experts Coming.—Among the passengers on board the Cunard Line steamship Campania, which sailed for New York last Saturday, were Major-Surgeon Ronald Ross and Dr. Rubert Boyce, professors in the Liverpool School of Tropical Medicine. Professors Ross and Boyce are going to New Orleans to assist the authorities there in dealing with the yellow fever outbreak.

Marine Hospital Physician Takes the Fever.—Dr. D. T. D. Berry, of the United States Marine Hospital Corps, in charge of the yellow fever work at New Orleans, was taken down last Friday with yellow fever. He has worked in the yellow fever epidemics in Cuba and was supposed to be an immune. He had charge of the inspection service in the Italian district. Dr. Berry was appointed from Virginia.

Typhoid in Washington.—The typhoid fever situation in Washington is growing worse. Since July 1 200 cases have been reported, of which 240 are now under treatment. A year ago to-day only seven cases were reported, making a total of 193 cases from the preceding July 1. A hopeful feature of the situation is that the new filtration plant is being put into operation. Water was started through two of the filter beds last week, and other beds will be put in commission as rapidly as finished.

Cumberland Valley Medical Association.—The third annual meeting of the Cumberland Valley Medical Association will be held at Holly Inn, Mount Holly Springs, Pa., Tuesday, August 29, 1905. The following program has been arranged: Address of welcome by James Evelyn Pilcher, M.D., of Carlisle, Pa.; address of President by V. Milton Reichard, M.D., of Fairplay, Md.; "A Case of Diaphragmatic Hernia of Twenty-one Years' Standing," by J. Bruce McCreary, M.D., of Shippensburg, Pa.; "Medical Lessons of the Far East," by James Evelyn Pilcher, M.D., of Carlisle, Pa.; "Our Relations to the World at Large," by Chas. F. Palmer, M.D., of Chambersburg, Pa., and a paper, subject to be selected, by Augustus C. Maisch, M.D., of Hagerstown, Md.

Big New Lake for New Jersey.—Next to the Great Meadows that lie between the Passaic and Hackensack Rivers in Hudson and Essex counties, the most prolific mosquito breeding grounds are the Great Piece Meadows, Hatfield Swamp, and the Troy, Whippany and Melapards Meadows that stretch along the Passaic River from Little Falls, in Passaic County, almost up to the city limits of Morristown. It is proposed to drown out the mosquitoes of this vast expanse of marshland by covering it with water and making another lake for New Jersey that will rival Hopatcong, in size and natural beauty. Petitions signed by all the rich residents of the two counties urge the State to supply the water. A lake covering the meadows and marshes named would be fifteen miles long and six or seven miles wide. The surrounding country is the most picturesque in the State, and the petitioners say that the lake would soon be fringed with beautiful new settlements that will add many millions to the material wealth of the State.

National Standard Dispensatory.—A new edition of this standard work will be ready September 1, the date when the United States Pharmacopœia goes into effect. By authority of the Convention it will contain every article in the new U. S. P., as well as the explanations and instructions necessary to understand and apply the brief statements to which the official guide is restricted. The National Standard Dispensatory is a new work, a distinct improvement upon anything of the kind hitherto published. Its authors, Dr. H. A. Hare, of Philadelphia; Prof. Charles Caspari, Jr., of Baltimore, and Prof. H. H. Rusby, of New York, are all men of the highest eminence in their respective fields, and are all members of the Revision Committee of the U. S. P. They have carefully matured its plan so as to render the maximum service to both professions it interests, namely, Pharmacy and Medicine. It not only covers the new U. S. P. as aforesaid (and the chief foreign pharmacopœias as well), but the scarcely less important domain of the unofficial drugs and preparations so largely used. It offers full information regarding the pharmacognosy, the pharmacy, and the medical action and uses of all substances used in Pharmacy and Medicine at the present day. Pharmaceutical methods and products are covered, with descriptions of the most improved apparatus and tests.

Medical Society of the Missouri Valley.—The eighteenth annual meeting of this association will be held in Council Bluffs, Iowa, on Thursday and Friday, August 24 and 25, under the presidency of Dr. S. Grover Burnett, of Kansas City. The Grand Hotel has been selected as headquarters, while the sessions will be held in the auditorium at Lake Manawa, a beautiful resort near the city. This will afford a cool and comfortable place to enjoy the scientific program, which will be much appreciated. The evenings will be devoted to the various forms of amusement found at this park. Following is a list of the papers already promised: Discussion on Diabetes, led by Dr. LeRoy Crummer, of Omaha; Discussion on Pulmonary Tuberculosis, led by Dr. J. W. Kime, Fort Dodge, Iowa; Carelessness in the Use of the Curette, Herman E. Pearse, Kansas City, Mo.; Treatment of Patients after Intra-Abdominal Operations, Daniel Morton, St. Joseph; Practical Facts About Hernia, L. A. Todd, St. Joseph; Four Cases of Essential Anemia and Their Differentiation, W. O. Bridges, Omaha; Some Observations on Carcinoma of the Large Intestine, A. P. Condon, Omaha; Clinical Importance of the Diplobacillus of Morax-Oxenfeld, Harold Gifford, Omaha; The Prevention of Deformity, J. P. Lord, Omaha; Bodily Weight as a Factor in Prognosis in Nervous and Mental Disease, Frank Parsons Norbury, Jacksonville, Ill.; Some Non-Septic Causes of Fever after Labor, Mary Strong, Omaha; The Pharmacology of Antipyretics, A. L. Muirhead, Omaha; Ectopic Gestation, with Report of Cases, O. Beverly Campbell, St. Joseph; Paper, W. O. Henry, Omaha. A cordial invitation is extended to the profession.

Mosquitoes in London.—A plague of mosquitoes, says the *London Mail*, is widespread in London. A few years ago they were almost unknown, or made their appearance fitfully in the neighborhood of the docks and Fleet street, coming, it was supposed, among the rolls of paper. This summer they are being found all over the metropolis, and in many places have given considerable work to the medical practitioners and the hospitals. They are extremely plentiful along the line of docks. The lower part of the Thames valley seems full of them, and a suggestion is made that those brought from abroad on ships have found a congenial breeding place in the low-lying, marshy ground on the Essex shore. At the Poplar Hospital, recently, it was stated that they had many cases there every day, men, women, and children being alike victims. There have been for years past many patients treated at this hospital for mosquito bites, but this summer they are more numerous than ever. The dry, hot weather has favored the insects, or made them, so to speak, strong on the wing. They are now wandering far from their breeding places, and not a suburb is free from them. The West End has suffered but little from the plague, but they have made their appearance in force in the western, southern and northern suburbs. They are especially abundant in the neighborhood of Muswell Hill, where hundreds of cases are treated by the local doctors daily. Alexandra Park, Hornsey, Wood Green, and Bowes Park swarm with them. Their clear, ringing buzz, unlike that of any other insect, is heard nightly, and hundreds of people are suffering seriously from their punctures.

The Boston Day Camp for Consumptives.—An open air day camp for consumptives, said to be the first of its kind in America, and similar to those in Berlin, has been opened by the Boston Association for the Relief and Control of Tuberculosis. One of its marked features is its availability, for the camp is within two miles of the State House—located near the reservoir on the top of Parker Hill, Roxbury, the highest point of land in Boston. Except in the case of the indigent, a small fee is required from those who receive the benefits of the camp. Only early cases, where there is hope of cure or decided improvement, are taken. The camp consists of several tents in an apple orchard on the old Brown estate adjoining the reservoir property. Last week there were thirty-six patients present with the chances that another week would see the tents used to their full capacity (fifty). The patients coming in the morning are met at Roxbury by a conveyance which takes them up the hill to their destination. It is as a day camp that the undertaking is a pioneer in this country. The treatment consists of good, wholesome food, rest and continuous outdoor life. Each patient on arriving is given a luncheon of eggs, milk and bread. The mid-day meal consists of meat, vegetables, bread, butter, milk, and dessert. Another luncheon is given late in the afternoon. Games and newspapers and books are provided, the women bringing their sewing, and a large recreation tent is there for stormy weather. Lectures are to be given at intervals by leading physicians of Boston—lectures that will tell them how to properly ventilate bedrooms, how to eat and how to avoid communicating the disease to others. Dr. David Townsend, of Brookline, and Dr. Gardner W. Hall, of Boston, visit the camp daily, together with General Secretary Alexander M. Wilson, of the association. Dr. Edward O. Otis, Dr. Frederick I. Knight and Dr. Herbert C. Clapp, the association's consulting physicians, have had much to do with originating the camp.

Yellow Fever Infection Sources.—The epidemic of yellow fever at New Orleans, writes the *Evening Post*, has served to draw attention to sanitary conditions in Central and South American countries from which the disease might have been brought. In North America, outside the United States, yellow

fever has been reported at four places in Mexico, three places in Honduras, at Belize, British Honduras; at Guatemala, and at Panama, Colon, La Boca, Corozal, Empire, and Paraiso, on the Isthmus of Panama. San Pedro, Honduras, is the only one of these places in which an extensive prevalence is recorded. South American reports received since July 1 show the continued presence of the disease in Venezuela, Ecuador, and Brazil, the latest reports indicating 85 cases, with 11 deaths between May 27 and June 11, at Rio de Janeiro. July reports from outside the Western Hemisphere do not indicate the presence of yellow fever elsewhere than in Senegal, Africa, and Santa Cruz de Teneriffe. The general health report from the Isthmus of Panama, however, is not very encouraging. The Marine Hospital surgeon stationed there reports, under the dates of July 18 and 22, as follows: "Week ended July 17, 1905: In the two municipalities of Colon and Cristobal, which together have an officially estimated population of 9,932, the mortality has been very high for the first half of July. From July 1 to 13, inclusive, there has been officially reported 38 cases from the following causes: "Fever 3, pernicious fever 3, malaria 5, yellow fever 1, dysentery 2, diarrhea 4, tuberculosis 1, tetanus 2, beriberi 2, pneumonia 2, pleuritis 1, pulmonary inflammation 1, epilepsy 1, nephritis dropsy 1, athrepsia 1, yaws 1, unknown 4. Classified according to nationality, as follows: Native 14, Jamaica 13, United States 3, France 3, Spain 2, England 1, Canada 1. These figures would show an annual death rate of over 90 per thousand. These statistics are compiled by the health officer from the reports of deaths made to the alcalde of Colon, and they show the same lack of care and display the same ignorance which characterized such statistics in former years. Comparison of the reports with the records of the Colon Hospital show that of the total deaths, 16 occurred in the hospital. The certificate of death is furnished the authorities by the hospital, but the occasional change or difference in the diagnosis cannot be explained. Malarial fevers have been very prevalent, and every section of the town, in fact, every house, swarms with *Anopheles*. The hospital records show an increase from 33 per cent. of all admissions in May to 50 per cent. in June. This does not include the out-patient department. It often occurs that patients, after an attack of yellow fever, return to the hospital with a severe malarial infection."

How the Pharmacopœia is Published.—Prior to the 1890 edition, the Committee on Revision of the U. S. P. sought a publisher as would an individual author of a new book. The Convention of 1890 made a new departure and instructed the Committee on Revision to secure the copyright for the revised Pharmacopœia. A contract was made with one firm to print the book and with another to act as selling agent. The Committee on Revision realized a good profit, which was used in covering the expenses of the work of revision and paying the members a small honorarium. The convention of 1900 inaugurated a new plan by adopting a constitution and by-laws and taking steps which resulted in securing papers of incorporation for the United States Pharmacopœial Convention. The constitution provides for a Board of Trustees of five (with the President of the Convention and Chairman of the Committee on Revision as *ex officio* members) in addition to the usual Committee on Revision. To the Board of Trustees is intrusted the transaction of all business, including the publication of the manuscript prepared by the Committee on Revision. The work has now reached that point where some idea can be given of the magnitude of the undertaking. The printing began in June, 1904, and progressed steadily until June 17, 1905. At that time, an imperfect sample copy was printed in order to obtain measurements for the size of cloth and leather sheets to be used in binding. The first complete unbound copy was furnished June 24. Then followed cloth-bound copies. The first edition consisted of 10,000 copies. This was printed in two runs, the first of 2,000 copies and the second, two weeks later, of 8,000 copies. This division of the edition was made in order that the Chairman of the Committee on Revision could be notified of typographical and other errors discovered in the 2,000 copies and have the corrections made in the plates before the 8,000 copies were printed. The Chairman states that no serious errors were discovered, but, of course, it was desirable to correct typographical errors, even as small as the omission of a bracket or an apostrophe. The second edition of 5,000 was ordered bound, July 21. A third edition has been printed and will be bound as soon as the distributing agent can give an idea of the styles of binding desired. Of course, corrections have been made in the plates for each edition as fast as errors were pointed out to the Chairman of the Committee. The different editions are designated by the serial letter on the printed conpon in the front of the book. "A" designates the first edition of 10,000, "B" the second edition of 5,000, "C" the third edition of 5,000. The fourth edition will bear the letter "D." It is estimated on good authority that at least 20,000 copies will be sold before January 1, 1906. The Board of Trustees will use the profit on these volumes in paying the expenses already incurred and, as soon as possible, send the members of the Committee on Revision checks for the honorarium voted by the Board of Trustees at the annual meeting in May and announced in the report of that meeting. Errors in the Pharmacopœia should be reported without delay to Professor Joseph P. Remington, No. 1832 Pine Street, Philadelphia, Pa., so that corrections can be made in the plates before another edition is printed. Criticisms and suggestions for the next revision should also be mailed direct to Professor Remington. Requests for permission to use portions of the text of the Pharmacopœia in commentaries, works of reference, text-books and other similar publications should be made direct to the Chairman of the Board of Trustees, Charles E. Dohme, Baltimore, Md. Neither the Board of Trustees nor the Committee on Revision members have anything to do in their official capacity with the National Formulary. This work is published and revised by the American Pharmaceutical Association, of which Charles Caspari, Jr., Department of Pharmacy, University of Maryland, Baltimore, Md., is the General Secretary. The Convention to arrange for the ninth decennial revision of the Pharmacopœia will be called by the President, Dr. Horatio G. Wood, for May, 1910.

OBITUARY.

Dr. Seth D. Boggs, a well-known physician of the Bedford District, Brooklyn, N. Y., died suddenly last week. He was fifty-three years old and was born in Brooklyn. Dr. Boggs was a graduate of the College of Physicians and Surgeons.

Dr. CLARKSON CROSBY SCHUYLER died at Plattsburg, N. Y., last Wednesday, aged fifty-five years. He was born in Troy, and was surgeon of the Troy Hospital for fourteen years. He was one of the best known physicians in Northern New York. He was appointed State Forest Commissioner in 1893 by Governor Flower, serving two years. He was a member of many medical and other associations.

SOCIETY PROCEEDINGS.

AMERICAN SURGICAL ASSOCIATION.

Twenty-sixth Annual Meeting, held at San Francisco, Cal., July 5, 6 and 7, 1905.

(Continued from Page 322.)

A Summary of all the Cases of Fracture of the Spine (244) Which Were Treated at the Boston City Hospital from 1864 to 1905.—Dr. H. L. Burrell, of Boston, contributed a paper on this subject, in which the author presented the following conclusions: (1) "That fractures of the spine may well be divided into two classes; *first,* fractures of the spine with injury to the cord; and, *second,* fractures of the spine without injury to the cord. (2) That it is not best to decide what the treatment of an individual case of fracture of the spine should be from the statistics, because the lesion varies so widely. (3) That in many cases of fracture of the spine it is impossible to state primarily whether the cord is crushed or pressed upon by bone, blood, or exudate, except by an open operation. (4) That only by the persistence of total loss of reflexes, complete insensibility to touch and pain, and motor paralysis below the level of the lesion can total transverse destruction of the cord be diagnosed. (5) That if pressure on the cord is allowed to remain for many hours, irreparable damage to the cord may take place. (6) That unless it is perfectly clear that the cord is irremediably damaged, an open operation to establish the condition of the cord and to relieve pressure is imperative as soon as surgical shock has been recovered from. (7) That in certain cases of fracture of the spine, when the cord is not injured, but is liable to injury from displacement of the fragments of a vertebra, rectification of the deformity and fixation of the spine may be used. (8) That if the cord is crushed, no matter what treatment is adopted, there will of necessity be a high rate of mortality.

Suture of the Spinal Cord Following a Gunshot Injury Involving Complete Severance of the Structure.—Dr. George Ryerson Fowler, of Brooklyn, N. Y., reported the case of A. E., aged eighteen years, clerk, born in America, single. The patient was admitted to the Brooklyn Hospital on April 28, 1903. He gave the following history: He suffered from pneumonia several years ago. Four years ago, while working at a machine, his left hand was caught in the latter, and so badly crushed that it became necessary to amputate four fingers. He had gonorrhea six months ago; no discharge at the present time. Shortly before admission he was shot in the back, his assailant using a 38-caliber revolver, at a distance of about thirty feet; the shooting took place somewhat from the right side. He suffered severely from shock, and paralysis of the lower extremities occurred at once. The bullet wound was located one and a quarter inches to the right of the median line and on a level between the tenth and eleventh dorsal spines. He was found to be paralyzed below the waist; sensation was absent over all of both lower extremities, and over the abdomen as high as one inch above the crests of the ilia on the sides, and about halfway between the symphysis and the umbilicus in front. Bladder and rectum were also paralyzed. The bowels moved involuntarily and irregularly, and without the volition or cognizance of the patient. There was considerable twitching of the muscles of both legs, especially the toes. Operation, May 9, 1903. Ether anesthesia. An incision was made, six inches long, over the spines of the vertebræ, the middle of the incision resting upon the eleventh dorsal spine. The laminæ of the tenth, eleventh and twelfth vertebræ were removed by the chisel. The bullet was found lying transversely between the severed ends of the cords, concealed from view by a large blood clot. A very narrow, ragged, and contused strip of dura, scarcely more than one-sixteenth of an inch in width, remained intact. The blood clot was carefully sponged away and the bullet removed. The ends of the cord were then sutured with three fine chromicized catgut sutures, the dura being included in the sutures. No special difficulty was experienced in drawing together the ends of the cord and closing the defect, the latter representing in width the diameter of the 38-caliber bullet. The dura was further secured with a number of sutures of fine catgut, and a drain consisting of a half dozen narrow strips of oiled silk protective introduced. The skin incision was sutured with silkworm gut. On May 30 the following note appeared on the hospital record: "Wound healed, upper line of anesthetic area from one and a half to three inches lower than before operation. Twitching of toes of both feet and occasional clonic muscular spasms of the flexors and extensors of the thighs; the patient says his 'feet jump on him.' Can feel when the bowels move, but is without control of the rectum. Can feel distention of the bladder with urine, but is without control." The main points of interest in this case related to the possibility of regeneration of the spinal cord following a destructive lesion. Prior to the report of Dr. F. F. Stewart's case, in which Dr. R. H. Harte sutured the cord after it was severed by a bullet, it was the opinion of the majority of investigators that such regeneration in man was impossible. Mikulicz, of Breslau, endeavored to demonstrate the possibility of a successful regenerative process in the lower animals following section of the cord, but without result. Spiller and Frazier found that after division of a posterior root in the dog, followed by immediate suture, regeneration occurred, and that regeneration into the cord did not occur. In Dr. Fowler's case, twenty-six months after the injury, voluntary motion was practically lost in the affected area. The patient was able to stand when supporting himself by the hands resting upon an apparatus, and to make some locomotion by swinging movements in a special frame on wheels. The bladder and rectum control was doubtful, to say the least, the former acting automatically. The patient had the sensation that the bladder and rectum were about to empty themselves, and if the urinal or bedpan were brought to him promptly soiling was prevented. The amount of urine passed in this manner probably averaged more than a pint in the twenty-four hours. The urine was sometimes voided during sleep. Sensation was practically abolished in the entire affected region, with the exception of an area about five inches in length extending down the outer side of the right thigh, where some sensation was present. He was not able to correctly distinguish between heat and cold. Tactile sensations were recognized, but were usually referred to a point two or three inches distant from the point

touched. Marked rigidity and spasticity of both legs rere present. Patellar reflex exaggerated; Achillis reflex marked. Ankle clonus present on one side and absent on the other. The reaction of degeneration was absent. Bed sores developed in the third month; these extended to the muscles and were six months in healing. The skin showed but slight, if any, evidences of trophic disturbance. A final and important comment was suggested in comparing this case with the Stewart-Harte case, namely: The Stewart-Harte case was operated on three hours after the injury, while in Dr. Fowler's case upward of ten days had elapsed before consent to interfere operatively was obtained. The prolonged separation of the divided ends of the cord and the presence of the foreign body had, in all probability, an influence in preventing a complete regeneration of the cord, as occurred in the first case, provided, of course, that regeneration did actually occur. While the case in hand was, therefore, not as striking in many of its features as the Stewart-Harte case, the author thought it presented some points of interest, and for this reason was offered as a contribution to the literature of the subject.

The Surgical Treatment of Intraspinal Tumors.—Dr. Richard H. Harte, of Philadelphia, said that the science of spinal localization was now so well developed that it usually was not difficult to determine with accuracy the location of an intraspinal growth. What was usually understood by the term tumor of the spinal cord was an extramedullary but intraspinal growth like a sarcoma, a fibroma, or a myxoma, giving no evidence of its existence except by the symptoms of medullary pressure which it produced. There had been found records of 92 operations for spinal tumors, among which number 43 patients died, a total mortality of nearly 47 per cent. The nature of the tumor was recorded in 88 of the reported cases. It was sarcomatous in two-fifths of the whole number (37 cases); adhesions, thickenings, etc., hold second place, with 11 cases; then came echinococcus, 8 cases; fibroma, 6 cases; syringomyelia, 5 cases; endothelioma, 4 cases; psammoma, 3 cases; cyst, 3 cases; fibromyxoma, 2 cases; osteoma, 2 cases; and one each of myeloma, lipoma, lymphangioma, dermoid cyst, primary and secondary carcinoma, and one tumor of bone whose nature was not stated. The author reported an interesting case of paraplegia from Pott's disease in which he resorted to laminectomy, with great improvement. With very few exceptions, he said, it was impossible to determine the nature of the tumor before operation. He reported a case of dermoid cyst of the spinal canal on which he operated, followed by recovery, the patient being a girl, seven years of age. Of 82 cases in which the region of the spine affected was given, the upper dorsal region was involved in 33 cases, or over 40 per cent. The tumor was found in the lower dorsal region in 24 cases, in the lumbosacral region in 14, and in the cervical region in 11 cases. the cause of death was given in 28 cases. One-half of these were due to shock and hemorrhage, or to infection and meningitis, there being seven fatal cases under each of these categories. Eight patients died from exhaustion, three from recurrence of malignant growths, two from hypostatic pneumonia, and one from bed sores and sepsis.

As regards the technic of the operation, it was the same as when employed in traumatic cases.

Tuberculous Conditions of the Spine Requiring Surgical and Mechanical Relief.—Dr. De Forest Willard, of Philadelphia, stated that the principal surgical measures employed for the relief of spinal caries were laminectomy for paraplegia; forcible immediate straightening of the kyphosis; forcible gradual straightening; erosion of carious bone; wiring of spinal processes; evacuation of pus accummulations; long continued fixation of the column; and hygienic measures to prevent the necessity for operative interference.

Complete, methodical and long-continued fixation of the spine in the position of hyperextension, with healthful surroundings in the sunlight, were the prime factors in securing new ossific deposit necessary to replace the carious bone. Laminectomy for paraplegia was advisable only after long continued and patient treatment along the above-named lines from one to two years, since the prognosis, especially in children, under these conditions was favorable, and good powers of locomotion might be confidently expected. The operation was justifiable in selected cases where loss of motion and sensation were progressively worse and the symptoms threatened life. If the tuberculous masses within the spine could be removed, and if extradural pachymeningitic deposits or pus could be taken away, improvement might be expected, and in many cases relief occurred. The operation had a mortality of about 25 per cent. from immediate shock; 36 per cent. within a month, while one-half the cases died within the next year, their lives being probably shortened by the operative procedures; cases of non-improvement and death equaled nearly 65 per cent. Forcible immediate straightening of the kyphosis was an unsurgical and dangerous proceeding; it was liable to re-awaken the tuberculous disease and to weaken the column. Forcible gradual straightening by supporting the kyphotic area upon a pedestal was a valuable agent in relieving deformity. The weight of the shoulders and pelvis could thus be utilized as straightening forces, and the weight of the column thrown upon the posterior arches. In this position it was permanently fixed by plaster-of-Paris. Complete erosion of the carious bodies of the vertebræ was an uncertain operation, in the dorsal region requiring section of ribs, with danger of wounding the pleura. Wiring of the spinous processes had never been sufficiently tried to demonstrate its helpfulness. Spinal abscesses which contained only liquefaction of caseation should be aspirated. When true pus formed, thorough aseptic drainage was advisable.

Tumors of the Spinal Cord.—Dr. J. Collins Warren, of Boston, read a paper on this subject in which he reported three cases of tumor of the spinal cord operated on with good results.

Spina Bifida.—Dr. James E. Moore, of Minneapolis, Minn., read a paper on this subject in which he presented an analysis of 385 cases treated by excision. A careful study of these reported cases, illustrating the experience of many surgeons, justified him in drawing the following conclusions: "(1) Operation upon children of very tender age is scarcely worth while because it is accompanied by so large a mortality rate, and because it does not stop the progress of progressing cases. (2) Patients five or more years old can be operated upon safely. (3) Patients with large or rapidly growing tumors, with hydrocephalus and with paralysis or deformities of the extremities are not cured. Finally all we can hope to accomplish by operation for spina bifida is to relieve the patient of an unsightly and annoying tumor after he has survived the dangers of the affliction *per se*."

Exophthalmic Goiter Treated Surgically.—Dr. Thomas W. Huntington, of San Francisco, Cal., said that during the past three years he had treated surgically nine patients suffering from exophthalmic goiter. In each instance partial ablation of one or both lobes of the thyroid was done, and one patient was subjected to three operations successively. Seven were females, and two were males. The ages ranged from twenty-eight to fifty-six years the average age being forty-two years. In five patients the development of symptoms of Graves' disease was associated with pre-existing enlargement of the thyroid. Two of these were cystico-colloid. In four the development of characteristic symptoms was simultaneous with glandular hypertrophy. All of these were colloid. In the five cases where the exophthalmic condition developed secondarily, pre-existing glandular hypertrophy was noted during a period of six, ten, thirty-four, thirty-five and thirteen years respectively. In this series exophthalmic symptoms had been noted one, two, three, two, and two years prior to operation, the average being one and four-fifths years. Duration of symptoms in the primary or pure Basedow cases prior to operation was two years, three months, two months and one year, the average being seven and one-quarter months. In this series eight patients survived the operation and were now living. One patient died on the twelfth day. The eight living patients were carefully watched and their status definitely recorded up-to-date. The author gave a detailed account of each case as it occurred. A wider experience in this particular field had increased his faith in the value of surgical interference in carefully selected cases, and in conclusion he repeated what he wrote in an earlier communication, namely, the argument for early operation in malignant disease applied here with equal force. Extirpation should be undertaken before destructive changes had occurred, before the function of important organs was seriously, perhaps permanently, injured, and the patient's vitality lowered by chronic thyroid intoxication.

A Review of Five Hundred Cases of Gastro-Enterostomy, Including Pyloroplasty, Gastro-Duodenostomy and Gastro-Jejunostomy.—Dr. William J. Mayo, of Rochester, Minn., stated that this included all the cases operated on by Dr. Chas. H. Mayo and the writer during fourteen years in which an incision was made in both intestine and stomach, and plastic union established to increase gastric drainage. The death-rate gave every case dying in the hospital without regard to the cause of death or the length of time after operation. Of pyloroplasty there were twenty-one cases with no deaths, and seven re-operations. Pyloroplasty had only a small field of usefulness. Finney's gastro-duodenostomy, 58 cases, four deaths, two from other causes at a late date; only one death in the first forty-six. The author stated that there was a large field of usefulness for this operation in narrow stricture following healing of ulcers, but it was less useful in unhealed ulcers. Of gastro-jejunostomy there were four hundred and twenty-one cases; benign, 307; death-rate, 6 per cent. Last 140 cases, four deaths. Malignant, 114; death-rate, 18 per cent. In the last 40, including radical operations for cure of cancer, 5 per cent. Murphy button, 157 operations, 139 anterior, and 18 posterior. This was the operation of choice after pylorectomy and partial gastrectomy. McGraw ligature, 36 operations. This was the operation of choice by the anterior method in gastro-jejunostomy for inoperable cancerous pyloric obstruction. Two hundred and twenty-eight posterior suture operations. Robson's bone bobbin, 16 operations, with one death. Mikulicz operation, transverse incision, 43 operations, with four deaths and four secondary operations. Moynihan operation on 9 inch loop, 53 operations, with three deaths; 7 re-operated for chronic bile regurgitation within fifteen months. Roux-Doyen operation, 48 cases, two deaths, two secondary operations. Operation of choice was the Moynihan-Peterson without a loop; made by suture within 3 inches of the origin of the jejunum and obliquely on the posterior wall of the stomach with the inferior margin at the greater curvature near the junction of the pyloric end with the body of the stomach. Last 80 gastro-jejunostomies for benign disease, only one death.

A Simple Aseptic Surgical Technic.—Dr. Dudley P. Allen, of Cleveland, Ohio, related observations which were based upon a series of 377 bacteriological examinations of the hands, made at the close of operation, and upon the clinical results obtained in 3,500 cases. The bacteriological investigations were conducted in five series. In series "A" the cleansing of the hands was with soap and water, scrub brush and nail cleaner. The hands were then sterilized in Harrington's solution. In operating the hands were encased in rubber gloves in which was sterile water. Twenty-six observations were made by taking cultures from the hands at the close of operation. In each case the cultures were negative. In series "B" the washing of the hands was as in series "A." Twenty-four observations showed that cultures were negative in each case. In series "C" the washing was as in series "A" with the addition of thorough subsequent washing in 70 per cent. alcohol. In 42 observations the *Staphylococcus pyogenes albus* was found in eight cases, or in about 20 per cent. The conclusion reached was that alcohol was not efficient as a disinfectant and did not prevent the development of bacteria within the rubber gloves containing no germicide but simply sterile water. From these observations it would seem probable that if bacteria developed upon the hands sterilized by alcohol, when in gloves containing simply sterile water, they would develop in the same manner upon the hands prepared in the same way if encased in dry gloves with powder as the hands became moist with perspiration. In series "D" the hands were prepared as in series "C" and then washed in a solution of bichloride of mercury, 1-5,000, and encased in rubber gloves containing the same solution. Sixty-four observations were made. All were negative except one. In this were found the *Staphylococcus pyogenes albus*.

In series "E" the hands were washed as in series "A" and then thoroughly washed with a solution of bichloride of mercury, 1-5,000, and encased in rubber gloves containing the same solution. One hundred and two observations were made. The Hay bacillus was found in one case.

In series "F" the hands were washed as in series "D" and then cleansed in a solution of bichloride of mercury, 1-3,000, and encased in gloves containing the same solution. Seventy-five observations were made. The *Staphylococcus pyogenes albus* was found in a single case.

The clinical observations were made upon a series of 967 laparotomies. Of these 687 were clean and 288 were septic before operation. There were 2,533 operations other than laparotomies. This gave a

total of 2,139 clean operations. For the purpose of study the clean cases only were taken, since the question of asepsis evidently could not be studied in cases septic before operation.

Tables were presented by the author showing the results obtained in all of the various series of operations as in hernia, varicocele, varicose veins, and laparotomies of all kinds and other miscellaneous operations. The results showed from the whole series of 2,139 clean operations but two deaths from sepsis. Erysipelas developed but once. Stitch abscess occurred in 58 cases, or in about 2.25 per cent.

The method of cleansing the hands finally adopted was to wash them thoroughly with soap and water, using the scrub brush for the palms of the hands, but slightly upon the backs of the hands and never upon the arms, the object being to avoid irritation of the integument. The nail cleaner was used only beneath the nails and not around the bases of the nails. The hands and arms were then washed in a solution of bichloride of mercury, 1-5,000, and encased in rubber gloves containing the same solution. The belief of the writer was that the continued action of the solution of bichloride of mercury in the gloves was a fundamental safeguard in preventing the development of bacteria within the gloves during operation. That this was true in practice was shown by the results obtained in the large number of cultures taken at the close of operation.

The conclusions reached from the various series of cultures and clinical cases were, first, that Harrington's solution, although efficient, was undesirable, since it caused marked irritation of the hands and arms. Second, that washing of the hands and arms should not be too violent, and that the use of the scrub brush should be confined to the hands. The arms should be washed by rubbing with gauze or a towel. The use of the nail cleaner about the base of the nails was unnecessary. Alcohol was not adequate as a germicide when used upon the hands. That a solution of 1-5,000 bichloride of mercury, used after washing to disinfect the hands and arms, and then used in the rubber gloves, was thoroughly satisfactory in protecting against the development of bacteria within the gloves during operation. That the rubber glove was a guarantee of safety, not only to the patient but to the operator himself, when operating upon infected wounds. That a mask over the face was not necessary.

Intussusception.—Dr. Maurice H. Richardson, of Boston, Mass., reported a case of intussusception in a boy aged four years. Vomiting and pain, with intestinal obstruction and a tumor in the left abdomen, suggested very strongly the diagnosis. The operation showed an invagination of the small into the large intestine, so firm that reduction seemed impossible. The child's condition was so bad that an enterostomy was performed, in the hope that a cure would be effected by spontaneous sloughing of the invaginated gut, life meanwhile being maintained through the enterostomy. Unfortunately, the child died at the end of eighteen days; the immediate cause of death being a purulent bronchitis. At the autopsy, no trace of the intussusception could be found. A careful search through the literature showed no case of spontaneous reduction of an intussusception in which the chain of evidence was absolutely complete. In this case, the diagnosis made before operation, and demonstrated before the staff of the Massachusetts General Hospital and a large audience, was unassailable. The lesson taught by this case would seem to be that greater efforts should be made for reduction, either by hydraulic or air pressure through the rectum or by manipulations after the abdomen had been opened. In the reader's experience, however, the results have been fatally compromised by just such efforts. It seemed, therfore, questionable whether in view of the great rarity of spontaneous reduction and of the almost universal failure of the milder palliative measures, one will ever be justified in selecting any but those operative measures which, undertaken at the earliest possible moment, cannot fail to remedy completely and effectively the disease.

Constriction of the Duodenum Below the Entrance of the Common Duct and Its Relation to Disease.—Dr. A. J. Ochsner, of Chicago, read a paper with this title. In a series of cases operated for the relief of cholecystitis it was found that there was frequently present a constricted condition of the duodenum just below the entrance of the common duct. This was usually accomplished with dilatation of the duodenum above this point.

The dissection of a number of cadavers demonstrated the fact that there was present a marked increase in the circular muscular fibers of the duodenum beginning at a point from one to three cm. below the entrance of the common duct and extending for a distance of one to four cm., forming a broad sphincter. It seemed likely that this sphincter had much to do with the physiological function of the duodenum, facilitating the mixing of chyme with bile. It also seemed likely that this sphincter served the purpose of establishing a condition of rest in this portion of the alimentary canal in case of irritation of the biliary or pancreatic ducts. The paper was fully illustrated and the author gave a tabulated list of fourteen cases of dilatation of the duodenum which he had met with among his patients operated for the relief of gall-bladder disease.

Perforation of the Gall-Bladder.—Dr. Archibald MacLaren, of St. Paul, Minn., read a paper on this subject in which he reported ten cases, and said that gall-bladder perforations were comparatively rare, especially if observations were confined to ruptures due to violence, ulceration and gangrenous inflammations. But if we added to these the cases of cholecystitis, in which inflammatory products had evidently escaped from, or passed through, the wall of an inflamed gall-bladder, even though we may not find the perforation itself, the number of cases was considerably increased. Such abscesses about the gall-bladder either in the free peritoneal cavity or in the neighboring liver tissues were rare as compared with appendical abscesses; but were not uncommon and unquestionably should be included when studying perforations of the gall-bladder. Fistulous passages between the gall-bladder and duodenum, stomach or colon were, of course, due to perforation of the gall-bladder. Most perforations of the gall-bladder occurred in neglected cases where gall-stones had been known to exist for long periods of time and where the patient had had ample warning through many attacks of biliary colic. Of Robson's 539 operations on the gall-bladder and bile ducts, 25 of these cases could be fairly said to be perforative in character. Dr. Mayo in 328 cases found 16 perforative cases. Dr. Ochsner in 48 cases operated upon found one perforation. He had operated upon 80 gall-stone cases, 9 of which were perforative in character and one post mortem, making a total of 10, which seemed a large proportion

as compared with other lists of cases already on record. There were eight recoveries and one death. In this fatal case he believed that the result would have been the same even though the gall-bladder had been removed because with gangrene of the gall-bladder and neighboring liver tissue, and especially in the presence of a localized abscess, any operative work which disturbed the abscess wall would only have spread the infection and lessened the chance of recovery. He believed that in any perforation case which had gone on to the formation of a localized abscess, the wisest course was to open and drain the abscess, waiting until a later time to deal with the gall-stones or the disease of the gall-bladder.

Dr. Emmet Rixford, of San Francisco, read a paper in which he discussed the subject of excision of portions of the chest wall for malignant tumors and reported cases upon which he had operated.

Officers.—The following officers were elected for the ensuing year: President, Dr. Albert Vander Veer, of Albany, N. Y.; Vice-Presidents, Dr. James E. Moore, of Minneapolis, and Dr. John C. Munro, of Boston; Secretary, Dr. Dudley P. Allen, of Cleveland, Ohio, re-elected; Treasurer, Dr. Geo. R. Fowler, of Brooklyn, N. Y., re-elected; Recorder, Dr. Richard H. Harte, of Philadelphia, Pa. Cleveland, Ohio, was selected as the place for holding the next annual meeting, the time for which is to be fixed by the Committee on Annual Meeting.

THE AMERICAN MEDICAL ASSOCIATION.

Fifty-sixth Annual Meeting, held at Portland, Oregon, July 11, 12, 13 and 14, 1905.

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SECTION ON STOMATOLOGY.

First Day—July 11th.

Chairman's Address.—After transacting the regular business, the Chairman delivered the annual address. She said the oral cavity bears an important relationship to medicine and surgery. Many pathological conditions of the mouth are due to constitutional causes, and many constitutional disturbances are directly due to neglect of the mouth and teeth and consequent auto-intoxication. Many gastrointestinal diseases and respiratory affections are due to infections of the mouth. Tuberculosis of the tonsils in children, adenoids and mouth breathing are all antecedents of phthisis. Proper care of the oral cavity will lessen stomatitis, gastric and intestinal outbreaks in public institutions. This should emphasize the necessity of a dental staff for all public institutions. The mouth should be very carefully sterilized before operations, otherwise infection and very serious results may follow. Parotitis has been known to follow laparotomies. Deformities of the jaws and teeth are often the cause of indigestion and disturbances of nutrition, due to interference with mastication. Decay of the teeth and pyorrhea may cause deformity by allowing the teeth to change position. The Jewish children have much better teeth as a rule than the Gentile children. The percentage of carious teeth is vastly greater among the Gentiles. The care and development of the teeth in childhood are most important. Nerve end degeneration is often the cause of carious teeth.

Dr. Eugene S. Talbot, of Chicago, said the average dentist does not see anything in relation to his specialty but the mechanical side. Within the last few years he thought certain men in this country had demonstrated that there is hardly a pathological condition of the mouth that is not due to some constitutional cause. Perhaps the most important point in regard to a paper like that is the treatment and care of the mouth during the development of the child. It has been shown that almost all of the deformities and pathological conditions of the mouth can be produced by a want of proper nourishment; that the first period of stress is probably the most important period in the development of the child, and deformities of the jaws, irregularities, etc., are apt to occur when the tissues begin to form. It has also been demonstrated that another cause of defect which has already been stated by the Chairman—*i.e.*, nerve end degeneration—has much to do with the development and disease of the teeth. Another important point, and one upon which great stress should be laid, is that of proper care of the teeth and of the mouth. The fact has been developed that in the specialty of stomatology, as well as other specialties in medicine, auto-intoxication and mouth infection are important causes of disease, and the time has arrived when if the specialty is to take rank with the other specialists of medicine, these three important points must be considered.

Dr. M. I. Schamberg, of Philadelphia, said he was much pleased to hear the Chairman make reference to the pernicious practice of retaining abscess teeth until they had passed beyond the acute stage. Another feature of the Chairman's report was the introduction into the public schools of an examining corps of dentists, who would not only examine, but endeavor to treat and handle many abnormalities presenting themselves early in life. In Philadelphia there has recently been established a corps of medical examiners. He feared, however, it would be some time before dental examiners would be placed in the public schools, but from what he has been able to learn there are very few children in the schools whose teeth are not badly neglected. It shows the necessity for a united effort of physicians and dentists throughout the country.

Dr. Marshall said that if absolute oral cleanliness could be had that it would only be two or three generations before dentists would be a scarce article in the profession. He believed that if the teeth and mouth were kept absolutely clean oral disease would disappear. Diseases of the mouth are usually diseases of neglect. The mistake of not beginning early enough with children is made.

In his army experience he had seen many soldiers coming from the Philippines. The majority of these men are from the lower walks of life and have very little education—certainly no idea of hygiene except what is taught them after they come into service. They know absolutely nothing of the care of the mouth; probably never even owned a tooth brush. It is a part of the duty of the United States to teach these men the use of the tooth brush. Those coming home from the Philippine Islands frequently have salivary deposits all over the teeth, the gums badly inflamed, and many of them suffering from pyorrhea. Some of these men are sent home with dysentery or diarrhea. It has been his fortune to be able to strike a line of treatment with these men which has been exceedingly beneficial. In those suffering from diarrhea, a thorough cleansing of the mouth, putting upon a proper tonic and giving good

mouth washes to keep the mouth clean and tone up the tissues, has produced wonderful results in many cases. Some have been under treatment for four or five months; others eight or ten months, and usually become well finally.

A symposium of dental education was read, consisting of the following papers:

A Common Ground for Medicine and Dentistry.—Frank L. Platt, of San Francisco, read this paper. He said the goal of both professions is practically identical, embracing all honorable means for the relief of suffering and the care and prevention of disease. It is the endeavor of the honest physician to prevent epidemics, and of the dentist to prevent dental disease. Prevention of disease is given a greater and more valuable scientific triumph than its alleviation and cure. More attention should be paid to the study of dental diseases in the medical colleges, and to diseases associated with the teeth in dental colleges. Both professions should unite in instructing the patients as to the value, care and preservation of the teeth. Syphilis, tuberculosis, etc., have much to do with the condition of the teeth.

The Physician as a Dentist.—Calvin W. Knowles, of San Francisco, in his paper said that a dentist should not only be a dentist but a medical graduate as well. Too much attention is paid to the mechanical side of dentistry and too little to the medical aspect. The affections of the teeth are not given sufficient attention in our medical colleges. He was firmly convinced that a chair of Stomatology should be established in our medical colleges. He was also inclined to the belief that a more extensive mechanical course would be very beneficial. It is only by having a more thorough knowledge of the subjects almost exclusively confined to dentistry that the physician will be able to determine in time to conserve the best interests of the patient, where the services of the physician end and those of the dentist begin.

Physician's Duty to the Child from a Dental Standpoint.—Alice M. Steeves, of Boston, in her paper said that the general practitioner has vast opportunity for dental missionary work among the children because of his relationship to the family. He should instruct the mother as to the care of the child's teeth from the appearance of the first white pearl, explaining to her the necessity of giving as much—yes even more—care to these first teeth than should be given to the permanent teeth. These first teeth should receive the attention of the dentist as soon as a cavity appears, and should not be removed until such time as they have fulfilled their mission. Internal medicine is important in this connection because of the relation of the mouth to normal digestion, and because of the effects of various medicines upon the teeth; laryngology is important because of the importance of a healthful condition of all the mucous membranes of the head. The textbooks on diseases of children should give more explicit consideration to the mouth and its relation to disease, and esthetic perfection.

Medical Relations of Certain Conditions of the Mouth.—Dr. L. Duncan Bulkley, of New York City, in his paper said that the mouth is actively concerned in the first step in digestion, and therefore in the processes of life and health. Although subject to continual irritation from various foreign substances, and although the seat of many varieties of microorganisms, its tissues show remarkable powers of healing after surgical or other injuries. The normal alkaline secretion varies with different conditions of the system. The saliva has an important function, but the average person eats too hurriedly and bolts his food too rapidly to give it a chance to act on the food. The saliva has a beneficial effect in sea sickness. If the patient be instructed to thoroughly chew some dry toast or crackers, thoroughly moistening it with the saliva, and eschewing all other food and water, in the majority of instances a recovery will ensue. It is becoming more apparent that decayed teeth are the cause of dyspepsia in many instances, and that purulent discharges in the mouth are often the cause of systemic disturbances. Syphilitic conditions of the system are more frequently evidenced by the condition of the mouth than is generally supposed. In gout and rheumatism there is increased acidity and a consequent gingivitis and pyorrhea. Chancres are found in all parts of the mouth and on the tongue. The most frequent cause of lesions within the mouth is syphilis.

In the discussion Dr. Vida A. Latham said that her experience has been in the last few years that the conditions of the mouth and teeth are based almost entirely upon systemic conditions. One of the great objects of the section work is to bring forth as much as possible specialists who have had large experience in diseases of the body, and try to show a relationship between the system and the teeth and adjoining structures. To her mind syphilis has much more to do with the conditions of the mouth than other extensive infections, possibly excepting tuberculosis. She had seen cases in her own practice where syphilis has been contracted, where the teeth before infection had been in splendid condition and afterward discoloration, decay and erosion have been quite severe, and interstitial gingivitis resulting in pyorrhea alveolaris, with wasting of the alveolar processes. In the last two years she had had two patients with gonorrheal infection of the mouth. The infection was thought to come from the fingers. These cases were unusually peculiar. There was marked inflammation with much pain, —the teeth became loose—there was a greenish slimy condition of the gums, and there was in these two cases slight fever.

Dr. M. I. Schamberg, of Philadelphia, said that all appreciate the number of pathological conditions of a systemic nature that manifest themselves in the mouth. During the past year he had seen one case of lupus, several cases of carcinoma of the mouth, and in one case the main interest lay in the early diagnosis. The dentist referring the case to him sent it because he was rather doubtful as to the condition, and a microscopical examination of the growth, which was very slight at the time, was made, and it proved to be an epithelioma, which was treated by the X-ray with good results. Several cases of syphilis of the mouth in various stages have come under his care during the past year. The last case happened to be an initial lesion immediately posterior to the superior central incisors. The case had gone on with a wrong diagnosis for three weeks, both the physician and the dentist failed to discover the cause of the lesion, and the condition was bad. He found a very pale, macular syphilide upon the abdomen. The mouth lesion had been masked by the application of caustics and other forms of treatment. Such cases show the necessity for thorough insight into medicine generally. It shows also

that the general practitioner is too frequently derelict so far as studies of the mouth are concerned.

Dr. L. M. Rhein, of New York, said that last year in evidencing his interest in the examination of the oral fluids for diagnostic purposes, he had occasion to take exception to the name saliva as applied, as being misleading. There are in the mouth the submaxillary glands, the sublingual glands and the parotid glands. It is true they are the salivary glands of the mouth, and they give forth a large per cent. of the fluid that circulates in the mouth, but there is added to that all of the eliminative secretions of the mucous follicles, which add materially to this fluid. Up to the present, this portion of the fluid has had no recognition given to it as having any of the function that pertains to salivary glands. The main portion of the medical profession have had no education as to what the normal physiological condition of the mouth is, and consequently when they examine an abnormal mouth they are at sea in regard to making a proper diagnosis either of what may be wrong, or as to whether it is even abnormal as distinguished from physiological. The trained stomatologist has opportunities for the minute and careful observation of what he sees in the mouth that so educates his sense of perception between the various conditions that it places him in a peculiarly fortunate position as regards diagnosis. The tendency of the papers presented to us has been more or less to bring us to a realization of the value that a general medical education will give to the man who practices in the region of the mouth. There is no gainsaying also another fact that is apt to be overlooked, and that is the absolute thoroughness of the work.

Dr. Bulkley, in closing the discussion, said that this subject is an immense one, and the fact that others have reached the same point of view on this subject is interesting. Stomatology as a term is of very great advantage, and if that can be introduced everywhere he thought it would be a step in advance. If the section had been called "Dentistry" he would not have read a paper. American dentistry is recognized all over the world. There are many cases of pyorrhea alveolaris which it would unquestionably be folly to send to a physician. In those cases which have been under his care he had used peroxide of hydrogen freely. Undoubtedly in these cases the first item is proper surgical treatment and perfect dental cleanliness. On the other hand, why does a patient have this condition? It is not from the parasites in the mouth. He did not believe in putting down so many diseases as have been attributed to bacteria. Just think a moment what tuberculosis was about fifteen years ago. Who ever thinks of trying to cure it now with tuberculene, etc.? Sunlight and fresh air are the best treatment. Thirty years ago Andrew Clark, one of the greatest physicians in the world, said: "Do not pay so much attention to the lungs; look after the stomach."

Second Day—July 12th.

Dentistry of To-morrow.—Dr. H. P. Carlton, of San Francisco, in this paper said that dentistry is the only specialty of medicine not universally requiring the degree of doctor of medicine. Dentistry and medicine have been separately studied, and this he considered was a great error. The dentist and the physician do not know enough of each other's work. The mechanical aspect of dentistry appealed to those first studying; it has been made a trade rather than a science. The relation of physiology, pathology and bacteriology necessitates an entirely different attitude, and is rapidly bringing the child dentistry back to the parent medicine. Many diseases are best studied in the mouth. The training of dentists should be under scientific teachers—men who devote their time to the study of medical education, rather than those with a busy practice. The technic of dentistry appears only as a small branch of a work in which all should share. The merely mechanical dentist is not competent to judge problems of diseases of the mouth, which may often be simply an indication of general systemic disturbance. Faulty dental conditions may cause faulty nutrition, etc., which could not be diagnosed by a merely mechanical man. The dental specialist of the future must be a broad diagnostician; must interpret what he sees in the mouth in connection with his general medical education. The same preliminary training should be required whether a student expects to practice general medicine, surgery, dermatology, ophthalmology, dentistry, etc. When this is accomplished, what will become of the dentist? The practical life demands division of labor, and the natural ability of the individual will bring about the proper division. This will not only prepare great men for great things, but little men for greater things than would otherwise have been possible. He who takes up the mechanical side has a broad field. Dentistry requires the highest type of mechanical ability; broad mental training makes a better dentist. "We live not only to be wage-earners, but for our country, our nation and science."

What Will Probably be the Educational Standard for the Coming Decade.—Dr. C. C. Chittendale, of Madison, Wis., in his paper spoke of the advisability of lengthening the college course to four years, and of requiring a degree of doctor of medicine.

These papers were discussed by Drs. Frank L. Platt, of San Francisco; M. L. Rhein, and others.

Surgical Bacteriology of the Mouth.—Dr. A. H. Levings, of Milwaukee, Wis., read this paper. The bacteriology of the mouth, he said, should play an important rôle. Here local manifestations of many diseases are found: influenza, smallpox, syphilis, scarlatina, measles, scurvy, etc., in some of which the specific organism may be found in the oral cavity. The frequency and variety of germs found is of interest. A great variety of germs gain entrance to this cavity, and the natural warmth and moisture, as well as the organic matter frequently present, make it a favorite seat for growth of bacteria. For the purposes of investigation, a variety of types of mouth may be distinguished thus: (1) Clean, (2) ordinary, (3) filthy, (4) tobacco chewer's, (5) mouths with distinct pathological processes.

The first group of bacteria studied comes from clean mouths, with well preserved teeth. To obtain these the mouth is washed with normal salt solution and the washings used for plating. In all cases a hanging drop showed thousands of bacteria; micrococci were found in all. Most frequently one finds staphylococci. In fifteen out of twenty a micrococcus test was made, while in six cases sarcina were discovered. All shapes and sizes of bacilli were discovered. These produced colonies too numerous to mention. Large numbers were acid producers, many gas producers and many species of putrefactive bacteria were found. In filthy mouths there is frequently some pathological process such

as scabies, suppuration, or ulceration. The pneumococcus was present in 10 to 30 cases. Tobacco chewers' mouths are more filthy than ordinary filthy mouths. Tobacco has no influence upon the growth of bacteria.

In ordinary conversation 235 colonies were counted as expectorated. After one minute of conversation at a distance of five feet during forced expiration 105 colonies developed. In one-half a minute at a distance of five feet and forcible expiration 102 colonies. At a distance of 15 feet after five forcible expirations 15 colonies were obtained. On plates exposed at a distance of five feet and coughed at forcibly five times, with one thickness of gauze, 156 colonies developed; with two thicknesses of gauze 35 colonies; with three thicknesses 8 colonies. Scrubbing with water and tooth-brush reduces colonies from thousands to a few. If the mouth is well rinsed and antiseptic then applied, a sterile solution is practically obtained.

Dr. Marshall, in his discussion, said that experience in handling fractures of the jaw shows that about ninety per cent. of all compound fractures of the jaw separate. He had operated upon those cases without any more disinfectant than washing out the mouth; but had learned that if the mouth be not thoroughly cleansed the wound will be troublesome, and salivary deposits will form. In his work in the Presidio, in San Francisco, he had found that the mouths of the soldiers were in a most deplorable condition. He had some placards printed and put in front of the dental chairs: "Clean Teeth Do Not Decay" and others, "Do Not Ask the Dentist to Treat Your Teeth Until You Have Brushed Them." It was surprising how many of those who had been with us some time improved. Many of them had never owned a tooth-brush.

The Treatment of Suppurative Affections of the Face and Neck Emanating From the Mouth.—Dr. M. I. Schamberg, of Philadelphia, Pa., in this paper said that early in the history of medical science men began to follow Nature's method of cleansing. Unaided, the vital forces will ultimately throw off pus. For a long time the use of poultices was considered proper treatment. Now the method of prompt evacuation is practised as soon as the presence of pus is determined. There is no place where a scar is more in evidence than on the neck and yet how often does it occur. Unfortunately relief from pain is often obtained by the application of heat in dentalgia. A large proportion of diseases of the neck and throat emanate from the mouth, evidently due to the fact that diseased teeth may be present, and transmit disease to the deeper structures. It is true pus organisms may gain entrance through wounds, ducts of glands, etc., but these are unusual. Suppurative parasites and other deep-seated disease are usually handled intelligently by the general surgeon. Often patients present with swollen faces, necks, and suppurative foci in the superior and inferior maxillary regions, the etiology of which is often obscure. A careful examination of the mouth often reveals the dental origin of the difficulty. A successful treatment of any suppuration is dependent upon recognition of the etiological factor; a putrefying pulp in a tooth may be evidence of its presence. To properly treat suppurations taking place about the face and chest, regard should be given mouth conditions. Sometimes where the lymphatics have been involved, the glands are so badly overworked that they broke down. Suppuration of neck in two cases seen by writer was so extensive as to suggest Ludwig's angina. In fact, in most if not all of Ludwig's anginas the avenues might be sought for in the mouth. Treatment is prevention and proper care of the mouth and teeth. If all mouths were to receive a reasonable amount of intelligent care in the hands of a competent dentist, supplemented by patient's oral cleanliness, many suppurative conditions about the head and neck could be avoided.

Etiology of Teeth Corrugations.—Dr. G. Lennox Curtis, of New York, said that peculiar spots, opaque markings, lateral corrugations, resembling rings, are often found in teeth. They were not always present in all of the members of the same family. Sometimes they are lateral, sometimes longitudinal. One cannot always find these markings on teeth and nails of same individual at same time. He believes that their presence points to an abnormal and interrupted changes in nutrition when the enamel is soft and impressionable. He concluded that the principal causes of corrugations upon the teeth are intoxication from absorption of ptomains, etc., from intestinal fermentation. These interfere with normal functional activity, clog emunctories, pollute the blood stream and produce substances called rheumatic fibrin. Fibrin may also be due to prodromal stage of disease. Some claim that leucocytes produce fibrin. He elaborated his opinions at great length and illustrated with many unique observations.

Dr. M. H. Fletcher, of Cincinnati, said in discussion that the markings on the nails are an established guide to physicians and he had always understood they were looked upon as being especially indicative of disorders of the alimentary tract; however, it is a known fact that any acute wasting disease which so reduces the assimilative processes of the body that destructive metabolism is present for a period of one or more days, will show transverse corrugations in the nails, the number, size and depth of these being determined by the severity and length of time that destructive metabolism is present. Pneumonia, pleurisy, or an acute attack of any kind will show these markings as surely as derangement of the alimentary tract.

THIRD DAY—JULY 13TH

To What Extent are Teeth Necessary to the Human Being?—Dr. M. H. Fletcher, of Cincinnati, in his paper said that nature offers considerable variations from an average standard, and still preserve a good state of health. The physiology of perfect function is so rare that it is hypothetical. It is the physician's endeavor to restore a patient to an average state. In patients in whom all the teeth are lost, great benefit may be derived from artificial ones, yet if they are not good, many of them are injurious to the mouth. Some artificial teeth are only valuable for cosmetic reasons, and appearances are not to be ignored. The insertion of a poor crown to replace lost teeth, however, brings trouble. Good molars properly opposed do more good work than substitutes. Grinding can be replaced in present stages of civilization by chemicals and by cooking. The actual necessity for teeth in the civilized race, he said, is almost nil. His superior intelligence allows him to choose his food. The saliva is merely a moistening fluid, and it is soon replaced by the gastric and the pancreatic juice. In examining men for military service, he

must have four sound double teeth on each side, or he is rejected. The loss of two-thirds or eight back teeth will not debar entrance and the back teeth include bicuspids. If the front teeth remain and double teeth are gone, rejection is demanded. Artificial teeth are not considered a substitute for natural ones in the army. Not much choice in army rations, which no doubt is taken into consideration by the examiner. The demands of health are more properly met by choice and selection of foods and proper preparation. There is danger to the patient from unkept artificial teeth and badly fitting plates.

In the discussion Dr. Talbot said that the first point in the paper is that man can get along without his teeth. The dentist believes that it is possible for a man to live without teeth; the second point is that modern dentistry, due to uncleanliness in the insertion of bridges, has as much to do with disease as any one thing. The collection of germs about ill-fitting crowns is more detrimental to the mouth than no teeth. In the lower vertebrates teeth are necessary, not only for chewing, masticating, but for prehensile purposes. As man rises in evolution the jaws and teeth are of less importance until at the present time it is questionable whether teeth are necessary. He has believed for years that man could get along without teeth. There are plenty of cases on record where men have lived for ninety or one hundred years where they have been without teeth for fifty or sixty years. Methods of preparing foods nowadays do not require mastication, and the jaws are shortening.

Dr. Platt, of San Francisco, said that while it is possible that man may live without teeth, he did not think it is a good plan for him to do so. He is heartily opposed to eating prepared food that is easily digested, and said he was opposed to vegetable diet and health foods. He had had patients who have taken up this mode of living and they are all losing their teeth. All show evidence of malnutrition.

Fatal Oral Pathological Conditions.—Dr. G. V. I. Brown, of Milwaukee, Wis., in his paper said: First, early recognition is essential to the prevention of grave results from comparatively simple, incipient conditions; second, extremely carefully differential study is necessary to distinguish between comparatively unharmful and other pathologic states that may be almost or quite hopeless from the point of view of prognosis; third, by the time the more serious cases come to the attention of the surgeon or general practitioner of medicine, it is frequently too late for successful treatment, and having developed one form or another of serious disease, the simplicity of its origin is too commonly never recognized; fourth, one of the reasons this is so is because dentists who have constant supervision of the mouths of their patients do not recognize the serious nature of the affection promptly enough; and, on the other hand, want of familiarity with the detail of diagnostic symptoms of mouth diseases on the part of the general practitioner prevents him from making a diagnosis that would be of untold value. Interstitial gingivitis, or so-called pyorrhea alveolaris, the various forms of stomatitis, neuralgic pain, malposed teeth, inflammatory and suppurative processes, including necrosis of the maxillary bone, and contracted dental arches are every day matters in the daily routine of the average dental practice. Malignant growths, tic douloureaux, mascular tic, facial paralysis, neurasthenia and other neurotic manifestations are constantly numbered among the hopeless cases of practitioners of medicine. That there is a chasm, but poorly bridged between these two, the better covering of which would save many lives and incalculable suffering, can hardly be questioned.

"The Ossification of the Lower Jaw," by Edward Fawcett, of Bristol, Eng.; "Anchylostomiasis and Tongue Pigment," by T. M. Russell Leonard, of Grenada, British West Indies, and "The Roentgen Rays in Dentistry," by M. Kassabian, of Philadelphia, were read by title.

AMERICAN GYNECOLOGICAL SOCIETY.

Thirtieth Annual Meeting, held at Niagara Falls, May 25, 26 and 27, 1905.

The President, Emilius C. Dudley, M.D., of Chicago, in the Chair.

The Society held its sessions at the Cataract House.

An address of welcome was delivered by Dr. Carl G. Leo-Wolf, of Niagara Falls, which was appropriately responded to by Dr. Ely Van de Warker, of Syracuse.

Accidental Rupture of the Non-Parturient Uterus, with Report of Cases.—Dr. George W. Jarman, of New York, had seen five cases of accidental rupture of the non-parturient uterus. These were detailed. To draw some deductions from his own cases and those reported by others, it seemed to the author (1) that the operation of invading the cavity of the uterus should not be regarded lightly, and that the same care in the details of asepsis should be carried out as in a laparotomy. (2) That great care should be used in the introduction of steel dilators, and at no time forcing them into the cavity of the uterus. (3) That as one's experience in gynecology increased, the use of the uterine sound decreased, and the fingers more and more frequently took the place of the curette to remove secundines from the uterus. (4) That sterile water was the best fluid for irrigating the uterine cavity. (5) That if a rupture or perforation of the uterine wall occurred, it was better to perform a laparotomy and assure one's self of the safety of the patient than to hope that no untoward results would ensue. (6) That if one could not be certain of the asepsis of the curettage, it was better to use a small drain through the vagina, and a slightly elevated posture of the patient, than to regret its non-use after the development of septic peritonitis. (7) That in properly conducted cases observed soon after the accident there should be almost no mortality.

Dr. A. Palmer Dudley, of New York, had perforated the uterus four times. In one case, after introducing the instrument into the uterus, he withdrew what he supposed was a fungous growth or secundines, but which proved to be eight inches of the small intestine. The intestine was passed back through the opening made in the uterus, and the patient let alone. She had since borne two children.

Dr. Herman J. Boldt, of New York, said it was not always that a perforation of the uterus caused serious trouble. Great discrimination should be used in those cases in which there was danger. In all instances of criminal abortion, where there was any suspicion that infection had taken place, the abdomen should invariably be opened. He had perforated the uterus a number of times, and had seen it perforated by others. In other instances of perforation of the uterus, the physician should do nothing except perhaps insert a small piece of gauze through the cervix, let the patient alone, and he believed the majority of cases would recover.

Dr. Eugene Boise, of Grand Rapids, Mich., reported two cases of perforation of the uterus, one of which occurred in 1871. The physician in attendance passed a sound clear up to the handle. Nothing was done, and the patient developed no symptoms. In the other case the uterus was perforated with a curette; the cavity was thoroughly washed out, the patient put to bed, without anything further being done, and she made an uninterrupted recovery.

Dr. Fernand Henrotin, of Chicago, had seen five cases in which the uterus was perforated. One was accidental. One was the result of the work of an abortionist, and on opening the abdomen, the patient being septic nine days after the supposed operation, he found a bougie nine inches long in the abdominal cavity. The patient recovered after undergoing a severe trial.

Dr. Andrew F. Currier, of New York, agreed with the previous speakers that in many of the cases in which perforation of the uterus had occurred no damage would result if the intestine had not been withdrawn. If there was a mere puncture of the uterus, if the woman was not septic, it was safe to leave her alone and do just as little manipulation as possible. But supposing the uterus was in a soft, friable condition, one was presented with the alternative of either closing the perforation or of removing the uterus. In many cases the removal of the uterus was preferable, and more than likely would result in more benefit to the patient than the mere closure of the hole. The key to successful treatment was complete drainage, and if there was already a condition of sepsis in the uterus, and one simply closed the wound, he was by no means sure that the sepsis would not continue. Therefore, in cases of that kind it would be prudent to remove the uterus, leaving the wound in the vagina open, and establishing free drainage.

Dr. A. Lapthorn Smith, of Montreal, did not think it was the curette which was responsible in most cases for perforation of the uterus. He confessed to having perforated the uterus about six or eight times. He had no fear of the result if the parts were thoroughly aseptic.

Dr. Clement Cleveland, of New York, had perforated the uterus with a sharp curette on one occasion when he was talking to his class about the carefulness with which the instrument should be used. The patient was to be operated upon for a lacerated cervix and lacerated perineum. He postponed this operation, put the patient to bed, and no bad results followed. The Society should exercise its influence toward eliminating the sharp curette from the bag of the general practioner, or else it should be relegated to the junk heap. It was fraught with the greatest harm to future women if it was used in the careless way it was to-day.

Dr. William E. Moseley, of Baltimore, said both the dull and sharp curettes had their place. Personally, he first introduced the dull instrument for diagnostic purposes, and then the question as to whether the dull or sharp curette should be used depended upon the character of the tissues one had to deal with. There were some cases in which there was more danger of perforation of the uterus from the use of the dull than from the sharp curette.

Dr. William H. Wathen, of Louisville, did not think the dull curette had any place in the surgery of an experienced gynecologist. The man who could not use a sharp curette without injuring his patient had better refer his cases to someone who could. Occasionally, he admitted, cases were reported where the uterus had been perforated by experienced operators. Curettage should be done by the sharp curette, or decidual remains should be removed by the finger, if possible.

Dr. Ely Van de Warker, of Syracuse, N. Y., stated that uterine curettement was attended with more or less danger, and should be confined to the hands of good gynecologists, and rarely ever or never done by the general practitioner.

Dr. Seth C. Gordon, of Portland, Me., said occasionally he had pushed a sound through the uterus, but by leaving the patient alone he had not seen any harm result.

Dr. Philander A. Harris, of Paterson, N. J., had perforated the uterus twice, once through the corpus posteriorly and once anteriorly. The perforation posteriorly was done by the curette, and the one anteriorly by his dilator. With his present dilator there was a device attached to it which registered the exact number of pounds exerted by the operator in dilating the cervix.

Dr. T. A. Reamy, of Cincinnati, Ohio, had perforated the uterus with a sharp curette within the past two years. He curetted a woman a short time ago, whose condition was such that his consultant was in doubt as to whether there was cancer of the body or the result of a chronic endometritis. The speaker in curetting the uterus rather thoroughly perforated it. A pelvic abscess resulted from the perforation, which was opened, and the patient made a good recovery.

Dr. Emilius C. Dudley, of Chicago, stated that within five weeks he perforated a uterus with a curette. The uterine wall was not more than the thirty-second of an inch thick, due to a localized pathological condition. A considerable quantity of bloody fluid was found in the cul-de-sac of Douglas, which was sponged out, the abdominal cavity flushed out with salt solution, and after closing the wound in the uterus with a purse-string suture, the abdominal wound was closed, and the patient made a good recovery.

The Treatment of Retroversion of the Uterus by Shortening the Uterosacral Ligaments.—Dr. Arthur W. Johnstone, of Cincinnati, stated that the first step in either retroversion or prolapse was due to a stretching of the uterosacral ligaments. This was proven by clinical experiences and a study of the comparative anatomy of the subject. This stretching was most commonly due to a low grade of infection spreading to these ligaments from the uterus or other contiguous structures, that made them lose their tone. A few cases were due to direct violence. The operation consisted in shortening the uterosacral ligaments through the vaginal incision. The uterus was replaced and prolapse cured. Shock was *nil*, and convalescence smooth.

A New Plan of Procedure in Retro-Uterine Displacements.—Dr. E. E. Montgomery, of Philadelphia, stated that retrodisplacements of the uterus more frequently demanded restoration to normal position than any other form of displacement. Nature's forces should be imitated as far as posible in relieving malpositions. The Alexander operation and its modifications were in this line of procedure. Its usefulness was limited to the uncomplicated and mobile uteri in which operative interference was least demanded. The majority of the intra-abdominal operations on the round ligament employed the best part of the ligament in their manipulation and left unaffected its weakest portion. The various operations of ventrofixation and ventrosuspension were departures from the normal, placed the uterus in abnormal relations and rendered painful and difficult the performance of its normal functions. The vaginal procedure required considerable dissection, were ineffective in restoring normal relations, and were to that degree to be condemned. The operative procedure, he would suggest, was a combination of operative procedures employed by Gilliam, Ferguson and Simpson. It permitted of treatment of diseased ovaries and tubes, left the uterus a freely movable organ, supported it by normal elastic

and muscular structure capable of undergoing evolution and involution, and, finally, afforded no opportunity for the formation of unfortunate adhesions.

Arteriosclerosis of the Uterus as a Factor in Uterine Hemorrhage.—Dr. Palmer Findley, of Chicago, read a paper on this subject, in which he gave a résumé of all cases, and reported four new ones. The writer dealt exclusively with the so-called essential or idiopathic hemorrhages, the cause of which was not definitely determined. He argued that arteriosclerosis of the uterus was not the prime factor in bringing about these obscure hemorrhages. In his opinion muscular insufficiency was the underlying cause, and the sclerosed vessels were but contributing factors. He drew the following conclusions: "(1) Metritis, as a primary lesion and independent of infection, is not accorded the consideration which the frequency of its occurrence and its clinical significance would warrant. (2) The muscular fibers of the uterine wall have an important function in controlling the caliber of the blood vessels, and hence in regulating the blood supply to the uterus, as evidenced in the relaxed condition of the uterine wall during menstruation, in post-abortion, and post-partum hemorrhages, and in the free bleeding which accompanies curettage when the uterus has relaxed under the irritable influence of the curette. In all these conditions the hemorrhages are controlled by the contractions of the uterus. (3) Any event which lowers the muscular tone of the uterus may occasion an abnormal loss of blood into the endometrium and uterine cavity. (4) Prominent among the factors which contribute to muscular atony in the uterus are the wasting diseases, anemias, and acute febrile diseases, which are not infrequently accompanied and followed by uterine hemorrhages as the result of weakened support to the vesical walls. (5) Fibrosis uteri is a far more common cause of muscular insufficiency. The building up of connective tissue in the uterine wall at the expense of the muscular elements is the result of long-continued passive congestion, which in turn is due to numerous general and local lesions, such as an incompetent heart, obstructions in the lungs, liver, kidney and spleen, abdominal swellings, varicose veins of the pelvis, and uterine displacements. (6) The walls of the blood vessels share in these hyperplastic changes, in that the media and adventitious coats of the vessel are thickened. In this manner the elasticity of the vessel walls is impaired, and if the lumen of the vessels is not narrowed by contraction of the vessel walls, and thickening of the intima, there will be added reasons for various engorgements of the uterine wall and capillary oozing at the endometrium. In such cases the prime factor in the causation of uterine hemorrhages is the muscular incompetency; the thickened vessel walls and the remote embarrassments to the circulation are but contributory factors. (7) This condition of the vessel walls is to be distinguished from the arterio-obliterans of the normal senile uterus, in which the vessels are partially or wholly obliterated by the thickened intima. In such cases hemorrhages do not occur, for the season that the blood supply is greatly diminished. (8) In none of the recorded cases were hemorrhages seen to come from ruptured blood vessels, nor were aneurysms of the arteries seen in the uterine wall. On the contrary, the escaped blood was farthest removed from the sclerosed vessels, and more evidently capillary. We are therefore not justified in ascribing the hemorrhages directly to the sclerosed vessels. (9) The diagnosis can only be made by first excluding all other possible causes, such as polyps, carcinoma and fibroids. (10) Hysterectomy has been frequently resorted to after repeated curettements have failed. Palliative methods—rest, ergot, styptic applications to the bleeding surface, and finally tamponading the uterine cavity—may be resorted to, but have repeatedly failed."

Postoperative Vomiting.—Dr. Eugene Boise, of Grand Rapids, Mich., said it was assumed as proved that there was a vomiting center from which all impulses toward vomiting were sent. These impulses might be received through various channels. The conditions that led to postoperative vomiting were numerous. They might be grouped as (1) those conditions pertaining to the anesthetic; (2) those pertaining to the general condition and surroundings of the patient; and (3) those pertaining to the stomach. The anesthetic caused vomiting (1) by its direct irritant action on the vomiting center; (2) by causing a toxemia, and (3) by saturating the secretions of the stomach. The conditions pertaining to the stomach were (1) chronic, such as atony, dilation, chronic disease of the mucous membrane, etc. (2) Acute, as saturation of the tissues and secretions of the stomach by the anesthetic. Treatment must therefore be preventive as well as curative, involving greater care in the preparation of the patient. Four things must be kept in mind: (1) The abnormal irritability of the vomiting center; (2) the condition of the stomach; (3) the condition of the blood; and (4) the condition of elimination. Treatment must be adapted to the conditions found. Theoretically, the indications were to obtund the sensitiveness of the vomiting center; to neutralize, if possible, the irritant character of the anesthetic, to cleanse and soothe the stomach; to keep the patient quiet in order to avoid circulatory disturbances; to aid elimination, and to support the patient and nourish the irritated nerve centers by rectal feeding when indicated.

Dr. A. Lapthorn Smith emphasized the necessity and importance of preliminary preparation of patients. Careful attention should be given to diet, to getting the bowels thoroughly cleaned out, so as to reduce the amount of vomiting after operation to a minimum. He advocated the drinking of large quantities of hot water by patients to wash out the ether that had been swallowed during its administration. Hot water taken in this way amounted to the same thing as gastric lavage.

Dr. Matthew D. Mann did not believe the character of the anesthetic had as much to do with vomiting as the amount of the anesthetic. The more deeply a patient was anesthetized, the greater the amount of anesthetic used, and the longer time it took the patient to get rid of it, the more the vomiting center was irritated. For three years he had been using ether, preceding it by chloride of ethyl. He had done an operation, lasting forty-five minutes, with two or three ounces of ether, when preceded by chloride of ethyl. Since following this method, vomiting had been greatly reduced, and in many instances the patients had not vomited at all.

Dr. A. Palmer Dudley said that if operators considered the preparatory measures mentioned by Dr. Mann, there would be less reflex action on the part of the stomach in postoperative work.

Dr. Andrew F. Currier thought the preliminary administration of chloride of ethyl, or nitrous oxide, as had been his custom recently, was much more satisfactory than the prolonged and irritating effects which came from the first stage of anesthesia through the administration of ether alone. One could lay down as a principle that given a very careful administration of the anesthetic and a small quantity, one would have much less trouble afterwards from vomiting.

Dr. C. C. Frederick agreed with Dr. Mann as to the preliminary use of chloride of ethyl, followed by ether or chloroform. For a year and a half or more he had begun anesthesia with chloride of ethyl, getting the

patient under its influence rapidly, then changing to ether or chloroform. Vomiting was much less by this combination.

Dr. Arthur W. Johnstone attributed the great decrease in the amount of vomiting after operations largely to careful preliminary preparation of his patients.

Dr. Daniel H. Craig, of Boston, did not consider eserin in any sense a specific against postoperative vomiting, but he thought it had the same effect on cases of postoperative vomiting as gastric lavage, whether resorted to before the patient left the table, or later. The effect of small doses of calomel given before operation, or divided doses of it after operation, was the stimulation of normal peristaltic action. With lavage the stomach was emptied. Eserin had no effect on the motility of the stomach itself, but it did in reestablishing or preventing stoppage of intestinal peristalsis. Eserin did the work far more efficiently than divided doses of calomel, which necessitated giving the patient medicine by the mouth at a time when she was nauseated and unprepared to take it.

Dr. Malcolm McLean, of New York, said one should give as little of the anesthetic as possible. Anesthetics should be given by men who were skilled in this work. By giving a preliminary anesthetic, such as chloride of ethyl or nitrous oxide, the preparation was such that when ether or chloroform was given, large toxic doses of it were not carried through the circulation so as to poison the patient in the postoperative stage.

Dr. George Gellhorn, of St. Louis, stated that for about a year he had employed as a preliminary the hypodermic injection of scopolamine-morphine, about an hour before operation. This combination arrested secretions from the mucous membrane of the mouth and throat. He gave scopolamine and morphine in the proportions of $^1/_{150}$ of a grain to $^1/_4$ of a grain of morphine. The effect was that the mouth and throat were absolutely dry and remained so during the operation, and the amount of ether used was materially minimized.

Dr. Reuben Peterson said his experience had been different from that of Dr. Gellhorn in the use of morpine and atropine. He had used this combination for years, giving about one-sixth of a grain of morphine and $^1/_{150}$ of a grain of atropine, about three-quarters of an hour before the anesthetic was given. Before he used these drugs there used to be excessive secretion; there was gurgling, so that the mouth and throat had to be swabbed out; but since their use this had almost entirely ceased. He had not attributed the absence of vomiting to the use of these drugs entirely, but to thorough preliminary preparation of the patient, and to better methods of administering chloroform and ether.

Dr. Edward P. Davis said that the remarks made concerned patients with whom there had been abundant time for preparation. One was obliged sometimes to operate upon emergency cases, as ruptured ectopic gestation. In these postoperative vomiting might be very depressing and dangerous. What could be done to prevent it? While the patient was on the table, and before the operation was quite completed, intravenous saline transfusion or injection would prevent postoperative vomiting as well as prevent shock

Dr. Fernand Henrotin said that one of the most important factors in the reduction of vomiting, as well as in the reduction of shock and of making a patient's recovery reasonably smooth, was washing out the stomach. For a little over a year he had been resorting to quick anesthsia with nitrous oxide preparatory to the administration of ether, using as little of the anesthetic as possible, immediately washing out the stomach thoroughly after every operation, and giving a hypodermic injection of eserin before the patient was taken off the table. The use of this combination had made an immense difference in the results of his general operative work.

Dr. J. Wesley Bovee thought the proper procedure was to prepare patients as well as the conditions would permit, and do it with proper discrimination. Then came the proper administration of the anesthetic, giving as little as possible of it, and steadily, not irregularly. After the administration of the anesthetic he had found the administration of oxygen for fifteen to twenty minutes to be the most satisfactory of anything he had used. He objected to the use of morphia because there were so many cases of renal complication in which the use of this drug would handicap the operator.

SYMPOSIUM ON THE RELATION OF THE APPENDIX TO PELVIC DISEASE OR TO PREGNANCY.

The Relation of the Appendix to Pelvic Disease.—Dr. Reuben Peterson, of Ann Arbor, Mich., read a paper on this subject in which he presented the following conclusions based upon the clinical and microscopical study of 85 appendices removed during the course of operations for pelvic disease: "1. In the first series of 200 cases, reported last year by him, a little over 50 per cent. of the appendices were found microscopically to be normal. In the present series 49.3 per cent., or practically 50 per cent., were found normal. The same microscopical classification was adopted as last year, namely, (1) negative; (2) chronic inflammation; (3) doubtful significance; (4) former inflammation; (5) acute inflammation; and (6) periappendicular inflammation. The only change in the classification was that groups 1 and 3 were practically united, and with the exception of two cases were placed in the negative group. This was a minor detail of classification, however, as in each series the appendices in both groups were considered normal. 2. In both series practically one-half of the removed appendices were microscopically normal, while the remainder showed evidences of acute or chronic inflammation, or the results of former inflammation. 3. The average length of 79 appendices was 9.99 centimeters. In the first series the average length was 8.25 centimeters. 4. The appendix was found adherent in 20 out of the 85 cases, or in 23.4 per cent. This was 5 per cent. higher than in the last year's series. But both series show that the appendix was adherent twice as frequently in those cases where microscopic examination showed past or present disease. A certain proportion of adherent appendices were, however, perfectly normal microscopically. 5. Abnormalities in shape were noted in 27 out of the 85 cases. The appendices were found to be club-shaped, constricted, or bent upon themselves in 10 of the 27 cases, yet microscopically such appendices were normal. Hence the same conclusions arrived at last year held good for the present series. Mere shape of the appendix cannot serve as an index of its normality or disease. Appendicitis may be club-shaped, constricted, or bent upon themselves, and yet be perfectly normal. 6. There were fecal concretions noted in 14 out of the 85 cases. This gave a percentage of 16.4, and was double that noted last year. This might be explained by the more accurate observations made in the present series of cases. It did not take into consideration microscopic concretions, but only the palpable forms. In 7, or one-half the cases, the appendices with fecal concretions were normal, hence, as noted in the first series, their existence did not denote disease. 7. Exactly 50 per cent. of the 34 patients in the present series with chronic disease of the appendages showed accompanying disease

of the appendix. 8. The following conclusion would hold good for both series: In chronic disease of the appendages adhesions of the accompanying appendices are present in nearly 50 per cent. (47 per cent., second series) of the cases where microscopical examination shows the latter to be diseased. In a certain proportion of cases, however, although the appendix may be adherent, it is also perfectly normal. 9. Of the 17 normal appendices accompanying chronic diseases of the appendages, 9 were noted as changed in shape, or contained fecal concretions, hence in chronic disease of the appendages, the appendix, which is club-shaped, constricted, or contains fecal concretions, is not necessarily diseased. 10. There were 21 cases of uterine fibromata among the 85 patients. Of these, 48 per cent. had accompanying disease or evidence of former disease of the appendix. The percentage was in the first series practically the same. 11. There were eight cases of large ovarian cystomata in the second series. Of these, 50 per cent. had accompanying disease of the appendix."

Inflammatory Conditions of the Appendix Accidentally Brought to Light in Pelvic Operations.—Dr. Hunter Robb, of Cleveland, Ohio, stated, in a paper on this subject, that of 370 appendices removed and examined microscopically, 103 were normal; 46 showed signs of a chronic, and one of an acute, appendicitis. In 88 cases there was an hypertrophy of the subperitoneal or internal coat, or of both coats. In 66 cases the changes were of doubtful significance; in 36 the lumen was occluded; in 16 dilated; in 12 the appendix contained concretions; in one case the appendix was cystic and had undergone myxomatous degeneration; in one case no lymphoid tissue was present. Conclusions: "(1) In a large number (in his series, 323 out of 370) of pelvic cases no inflammatory changes in the appendix were found even microscopically. (2) When one finds a normal appendix in conjunction with disease of the pelvic organs, it is improbable that the latter condition has been brought about by a perforation of the appendix which had afterward healed. (3) On the other hand, an old periappendicitis and adhesions might often be looked upon as the result of a septic infection, originating in and spreading from the organs of generation. (4) An appendix which looks abnormal microscopically does not always show inflammatory changes on microscopical examination. (5) Nevertheless, when the removal of the appendix adds very little to the gravity of the abdominal operation, for the benefit of the patient it should be taken away. (6) In his series of 370 cases there were four deaths; but a careful analysis shows that the fatalities should in no instance be attributed to the appendix removal."

Appendicitis in Its Relation to Pregnancy.—Dr. Henry C. Coe, of New York, stated that his experience had led him to believe that many mild cases were overlooked, or were mistaken for other affections—adnexal disease, pyelitis, colitis, etc. In view of the tendency to obstinate constipation and intestinal toxemia, one would expect to find that appendiceal complications were not infrequent during pregnancy. Moreover, many women with a history of former attacks became pregnant, when all the conditions favored recurrences, though they were usually of a mild type. Eight illustrative cases were cited from the writer's private practice, four patients recovering without operation, two being operated upon at the third and fifth months, without interruption of the pregnancy, while the remaining two were carried through the puerperium and submitted to operation later. Dr. Coe then discussed the symptoms, diagnosis, differential diagnosis, prognosis and treatment. The writer's views coincided practically with those of Pinard, namely, to treat appendicitis in the pregnant female according to the same rules as in the non-pregnant. In mild cases carry the patient to term, if possible, and operate as soon as convenient after the puerperium, if the trouble persisted. With the persistence of local pain, and if an induration was felt, operate as in any other case. Perforation and abscess formation called for immediate operation, rapid work, as little handling of the uterus as possible, and free drainage. Accouchement forcé, previous to operation, as recommended by Marx, was not approved by the writer. Since the toxemia of pregnancy was often of intestinal origin, as in appendicitis, careful attention should be paid to the regulation of the bowels by the use of laxatives, high enemata, restricted diet, the drinking of large quantities of water, etc.

(To be Continued.)

JOHNS HOPKINS HOSPITAL MEDICAL SOCIETY.

Regular Meeting, held March 20, 1905.

The Scope and Problems of Surgical Physiology.—This paper was read by Dr. Crile, of Cleveland, Ohio. Surgery in its early days had been, he said, anatomical and empirical; but it had been wholly transformed by the origin and development of pathology and bacteriology. Physiology in its surgical relations was now, however, coming to the fore as it was more and more realized how often surgical treatment rested on an understanding of surgical physiology. A stoppage of respiration for instance due to reflex inhibition was a very different phenomenon from a similar stoppage due to obstruction, and demanded therefore a different sort of surgical interference. Respiratory arrest could be caused by strong traction on the tongue and a knowledge of this physiological fact might relieve anesthetizers of embarrassment who, in their efforts to produce respiration, might, in their ignorance of physiology, be defeating their own purpose. The reflex effects of peritoneal manipulations were often overlooked and the reflex expulsion of intestines, through an abdominal wound, was often blamed on the anesthetist when it was due really to peritoneal irritation. The surgical physiology of the circulation was of the utmost importance and yet it was very incompletely understood. Often life itself and more often still immediate operative results depended on the proper care of the circulation. Independent of anesthesia the mere handling of tissues might impact or even throw out of function completely the vaso-motor centers; and a proper knowledge of the facts would make efforts to afford these centers efficient support more intelligent. The result of an operation is equal to the sum of the insults caused the tissues; and blocking of certain of these insults, by intraneural cocainization has minimized or even abolished shock after even such serious procedures as double thigh amputations. The mere opening of an appendical abscess under cocaine with an extensive curative operation later when the procedure could be carried on within physiological limits was a good example of the safety of operative physiologic progression. Many of the facts of compensation by one organ for another were quite unknown and yet a knowledge of them would be most important for surgical treatment. The nature of protoplasmic response to changed environment, determination of minimum circulatory requirements for each organ, discovery of practical methods for helping organs over a surgical crisis, the whole question of physiology of the lymphatics, of the surgery of thrombosis and embolism, of shock—here were problems almost untouched. The intricate problems of brain localization in human beings

were still to be developed. And might it not be possible by cocainization to effect functional detachment of the medulla to protect it from injurious surgical stimuli? There had been hitherto a surgical fear of the heart; yet perhaps in the future operations on the valves might not be impossible. Our knowledge of the pulmonary circulation was infantile; surgery of the stomach had but just been opened and the suprarenals, thyroid and pituitary body had been almost untouched.

Dr. Howell said that thirty years ago, when Ludwig and Virchow were doing their work, the association between medicine and physiology had been intimate. With the prominence of pathology and bacteriology, however, the two had been somewhat divorced; but it was gratifying to see surgeons again coming back to physiology. The problems in surgical physiology were, however, very difficult ones and were not to be thought of as simple; for they depended, ultimately, on physiological fundamentals and these were difficult for even specially trained physiologists to master.

Partial Occlusion of the Aorta.—Dr. Halsted reported some experimental work done by himself and Dr. Sowers on this subject. Ligation of the aorta had been tried fourteen times in human beings and had always been fatal. The early experimental work on the subject had been done by Pirogoff, but, on account of his septic technic, it had not been successful. Dr. Halsted used for ligation a metal band which could be gradually tightened until obliteration was complete. Contrary to what might be expected, no gangrene of the lower extremities occurred; but Stensen's phenomenon (paralysis of the extremities due to anemia of the cord) was present. As a rule in time the circulation became completely shut off; but just before this occurred an equilibrium was apparently established between the blood above and that below the ligature and there were evidences that in some cases the pulse reappeared below after having disappeared. No evidence of clot formation was seen nor was there any endothelial proliferation in the arterial wall—which was normal except for atrophy. In certain cases the metal band cut through and lay within the vessel; and in one or two cases a semilunar diaphragm formed within the aorta. Contrary to the experimental findings of Lister, no endothelial proliferation took place.

The Blood Pressure in Different Parts of the Arterial Tree.—Dr. Dawson reported a study of this subject which was undertaken to determine the changes undergone by the systolic, the diastolic and the mean pressures in passing from the heart to the periphery. The aortic-cephalic, the aortic-brachial and aortic-femoral systems of the dog were studied—a canula being introduced into the aorta and then into the successive parts of each of these systems moving toward the periphery. The various blood pressures were read in each of these situations. An unexplained initial rise occurred near the heart—the pressure measured at a point nearest the heart being slightly lower than at a point a little distal to that.

Heart-Block in Mammals.—Dr. Erlanger reported experimental work done in regard to heart-block in mammals. Complete heart-block was said to be present when the auricle and ventricle were beating with two independent rhythms and, though a well known phenomenon in coldblooded animals, had never been produced in the mammals. Dr. Erlanger's experimental work started with a study of a case of Stokes-Adams disease in the Johns Hopkins Hospital. It was found, by careful pulse tracings, that the auricle and ventricle in this patient were beating with differing rhythm. The administration of atropine had the usual effect on the auricular beat; but the ventricular beat did not change, the ventricle being thus shown to be uncontrolled by the vagus. The accelerations were, however, shown to be acting in both auricle and ventricle. During the attacks the ventricles stopped but the auricles continued to beat, and all these phenomena led Dr. Erlanger to the conclusion that the Stokes-Adams disease was ultimately heart-block. He then set about trying to produce this condition in dogs, and was finally able to accomplish this by placing a specially devised hook-clamp between the auricle and ventricle and compressing with it the auriculo-ventricular muscle bundle of His. The study of the case and the further experimental work on dogs showed conclusively that every case of Stokes-Adams disease (the rhythm in the neck vessels different from the rhythm at the heart, being one of the features described by Stokes) was in reality an instance of heart-block, and a study of all the cases in the literature which have been well observed and by adequate methods confirmed this idea. All the symptoms, Dr. Erlanger said, could be explained by a lesion of the auriculo-ventricular bundle of His and there seemed to be neither need nor warrant for calling in the cardiac nerve centers to explain the condition.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Stated Meeting, held February 22, 1905.

The President, James M. Anders, M.D., in the Chair.

The Pasteur Treatment for Rabies Administered at the Patient's Home.—Dr. Myer Solis-Cohen in this paper said that the treatment might be administered at the patient's home, and reported the following case: A man and his son were bitten by a dog whose medulla and plexiform ganglia showed the cell changes diagnostic of rabies. They were given the Pasteur treatment at their home, the virus being mailed by special delivery each day by the Pasteur Institute of the Department of Health of New York City. On its arrival the virus was put on ice, and as soon after as practicable was injected with aseptic precautions into the subcutaneous tissue of the abdomen. The patient's bowels were kept open and alcoholic excesses were avoided. There was no constitutional disturbance, and no interruption of the daily work. On but two occasions did the treatment cause a local reaction, which, however, responded to antiseptic measures. Two weeks after the cessation of all treatment no symptoms of rabies had developed. The patients consequently were considered out of danger. Dr. Cohen concludes from such a case that a person when bitten by a rabid dog need not necessarily go to a Pasteur institute for treatment, but, if within a day's journey of one, may be supplied daily with the virus, which can then be injected by the family physician with apparent success.

Dr. Ernest Laplace referred to his privilege of working with Pasteur in 1885 and 1886 in his experiments upon that which has resulted in an absolutely preventive treatment of hydrophobia. Pasteur never made a diagnosis of hydrophobia unless a piece of the brain or spinal cord of the dog were injected into the rabbits and they died of hydrophobia. Dr. Laplace does not advocate the adoption of this method, but believes that for the scientific value of the treatment it is not well to be satisfied with this inoculation. Although the germ of hydrophobia has not been found, Dr. Laplace believes that the treatment is based upon a scientific foundation. That the poison exists is undeniable, for it can be produced and reproduced, attenuated, and made more and more virulent at will; and more can be done

with the poison than with any other, except that of anthrax. Pasteur's idea was to produce in a patient with dog hydrophobia, which requires three weeks for development, a tolerance with the rabbit hydrophobia, which is more virulent and takes only ten days to develop. The pains alluded to in Dr. Cohen's case he thought due to local causes. If treatment can be carried out at home he regards it as a step of great worth to medicine in general. The moral effect upon a patient leaving home in a desperate rush for treatment he considers very bad.

Dr. William M. Angeny referred to a patient bitten by a supposedly rabid dog, who was sent to New York for the first two days' treatment, and after which time the virus was sent to Dr. Angeny for use.

Dr. G. Morton Illman thought it strange that there should not be an admission of the diagnosis of hydrophobia, since the condition is proven by inoculation and is rapidly becoming associated with a definite pathology. In human beings there are distinct changes in the ganglion cells and the medulla. With such a complete Board of Health he thinks Philadelphia should have a laboratory in which this treatment could be carried out.

Dr. Cohen, in closing, said that in the question of whether or not a dog had rabies, if the head only were taken to the pathologist of the Live Stock Sanitary Board of Pennsylvania a report would be given on it.

Surgical Intervention in Cases of General Peritonitis.—Dr. Joseph Price said that the profession had been slow in accepting the overwhelming evidence of operating and clinical facts. A few of the early surgical obstructionists, however, are now the most aggressive and persistent advocates for early surgical intervention in abdominal traumatism and pathology. With the present precise knowledge of pathology and diagnosis he believes there is no excuse for delay in operation. Surgical intervention for peritonitis and perforated ulcers was suggested during the seventeenth, eighteenth and nineteenth centuries, but nothing of a positive nature was done until about 1878. Embolism of large and small mesenteric vessels, he believes, has not yet received deserved attention. Any variety of peritonitis or infection should be anticipated surgically. From a long experience he believes that about all the sufferers from perforations in and about all the viscera in the peritoneal cavity, typhoid perforations, suppurative, gall-bladder, gastric and duodenal perforations should be saved. It is the soiling of walled-off cavities Dr. Price believes dangerous and unreliable. The possibility of peritonitis remaining local or circumscribed by adhesions should not be considered if diagnosis of perforation has been made. Firm, pure silk he regards as the best suture material and the interrupted sutures as giving the best results with less risk of strangulation. If the margins of the ulcer are ragged they should be trimmed. A resection, he states, is unjustifiable. The irrigation should be a thorough cleansing with sterilized water of the entire surface. It is his impression that irrigation with hot normal salt solution is harmful, causing irritation. Curetting or wiping dirty points with gauze is followed by good results. The gauze pack, as so commonly and recklessly used, he regards as a dangerous procedure. Two typical cases were cited and the plea made for early diagnosis, early surgery and for more thorough toilets to arrest peritonitis and sepsis.

Dr. Ernest Laplace said that cases of peritonitis die because of their coming too late to the surgeon. This he thought was more often the fault of the physician than the patient. Two distinct problems in Dr. Price's paper, he said, were peritonitis as produced by perforating typhoid ulcer, and diffuse peritonitis from other causes. An important point of difference between the two is that when a typhoid fever ulcer perforates the contents of the intestines that flow into the peritoneal cavity it is largely harmless at the time, as it requires a little while for the germs to become pathogenic. If such a case gets well the poison was local. It is quite a different thing to treat a foul peritonitis resulting from a gangrenous appendix or from the rupture of an appendical abscess that has gradually leaked into the abdominal cavity. The abscess cavity in particular and the peritoneal cavity in general, he believes, are best cleaned out with sterile water. The much-vaunted saline solution, he thinks, is objectionable on account of its irritating effect. The cleansing of the abdominal cavity should be continued as long as it is possible without detriment to the patient, and to effect this he carries out a plan of repeated irrigation. Temperature and pulse records, while valuable with reference to shock, give no indication of the necessity for operation. Operation should depend upon the general appearance of the patient. In washing out the abdominal cavity he avoids the use of gauze, using rather the smooth surface of glove or bare hand. While idodoform gauze is a great power for good in some wounds, in some it causes increased inflammation. If used at all it should cover only the spot that was the seat of the abscess, and should be separated from the rest of the cavity by the plain gauze.

Dr. John H. Gibbon does not believe the diagnosis of typhoid perforation easy, and he regards it as a great mistake to wait for the typical symptoms of perforation before the surgeon is called in. The most valuable symptoms to the surgeon in his opinion are localized pain and rigidity coming on suddenly. He agrees with Dr. Price that resection is hazardous. Anchoring the bowel, surrounding it with cofferdams of gauze, he believes is the best method. The element of time he regards of the utmost importance in these operations. In localized peritonitis he believes that thorough drainage is better than thorough irrigation, but generalized peritonitis demands complete irrigation. Admitting that salt solution may give pain when applied to the peritoneum he yet believes that it does do good.

D. B. F. Baer's experience with salt solution does not agree with that of Dr. Laplace. He has used it for the last few years and believes it nourishes the patient by filling the blood-vessels. There are less apt to be adhesions and the skin is in a better condition on account of the effect of the salt solution upon the kidneys.

Dr. Laplace explained that he said he believed salt solution would irritate in general peritonitis where from the washing there could only be expected a cleansing effect, and where the amount of the solution was insufficient to prove an antiseptic.

Dr. Edmund W. Holmes thought surgeons should agree that the four symptoms of pain, localized tenderness, abdominal rigidity and some interference with respiratory action are indications for operative interference.

Dr. R. P. McReynolds thinks the diagnosis in typhoid perforation particularly difficult. In general peritonitis from gonorrheal infection he sees no reason for operating in the acute stage. The temperature comes down to normal if the patients are kept in bed, given hot douches and treated by the expectant method. After this the pus tubes may be removed and the abdomen closed without drainage.

Dr. Price, in closing, said that no progress in medicine

had pleased him more than that of the modern clinician in the question of diagnosis. It is his experience that often the rural practitioner will make a more refined and accurate diagnosis than he personally is willing to make. In the packing of gauze too often there results bowel pressure. It should be placed not too low down, and not packed upon viscera paralyzed by peritonitis and overdistention. The cases of peritonitis which he fears the most are those of enormous distention. With reference to waiting for recovery from collapse, or for reaction practised by early operators, Dr. Price believes surgery to be a very good treatment for shock.

MEDICAL AND CHIRURGICAL FACULTY OF MARYLAND.

Stated Meeting, held March 17, 1905.

Dysentery of Children.—Dr. J. H. M. Knox showed the pathological specimens of some children who had died with severe forms of this condition. So-called "summer-complaint" included, he said, three groups of cases; (1) intestinal indigestion, following a gross dietary indiscretion; (2) gastro-intestinal intoxications, in which nausea, vomiting and toxic features were prominent; (3) enteritis or ileocolitis, in which marked membranous ulcerative or other lesions were present. The first specimen was from a child who had an ordinary dyspeptic diarrhea with mucoid stools. After a time blood began to appear in the movements and nausea and vomiting became marked. There was also fresh blood in the vomitus, though the lungs were negative. The course was down hill and death occurred in asthenia. Widal had been negative. At autopsy discrete, punched-out ulcers were found throughout the intestine but ceasing entirely above the ileocecal valve. Cultures for typhoid and for dysentery bacilli were negative. The second patient was a baby of three months, who was admitted in collapse from some gastro-intestinal trouble. Some improvement followed treatment but death soon occurred in asthenia. Marked pyuria had been present and great numbers of colon bacilli were found in the urine. Autopsy showed caseous glands at the base of the lung and tubercles on the pleura. Three feet above the ileocecal valve was a pseudomembrane lining the entire gut, from which dysentery bacilli were obtained. The third patient had had mucoid stools for several weeks and at autopsy showed a membranous leitis from which dysentery bacilli were obtained. In the fifth case dysentery had been present for two weeks, the stools showed tubercle and dysentery bacilli and there were signs in the lungs. The bowel showed undoubted tuberculous ulcers besides others in the sigmoid and rectum thought to be probably dysenteric.

Hyperpyrexia in an Infant.—Dr. Mitchell reported this case. The child had been born healthy and was put at the breast, the mother, however, failing to lactate. On the third day the child's temperature was 100° F. on the morning of the fourth day 103° F., and that evening 106.6° F. In absence of the other signs a diagnosis of inanition fever was made and under milk feeding and baths the child made a good recovery. The moral of the case was that whenever a breast-fed child shows inexplicable fever inanition should be thought of.

Measles in an Infant.—This patient, reported by Dr. Mitchell, showed fever, coryza (lacrimation) and râles on the seventh day after birth, and a few days later a typical measles developed, without Koplik's spots. Infection probably developed on the day of birth and was pretty definitely traced to a shawl in which the child was wrapped and which had been used on a measles patient nine months previous.

Rheumatic Purpura.—Dr. Watson briefly reported three cases of this disease occurring in a single block. Dropsical symptoms were present in all.

BOOK REVIEWS.

THE DISEASES OF SOCIETY AND DEGENERACY. By G. FRANK LYDSTON, M.D. J. B. Lippincott Co., Philadelphia and London.

THE title which Dr. Lydston has given his book implies a wide range of subject, an implication abundantly fulfilled. In these days when the social idea is so prevalent, the qualifying phrase "of society" appended to a noun is rather expansive than limiting. Consequently we need feel no surprise to find a book with this inscription comprising studies in evolution, criminology, psychology and everythhing else that can be considered as bearing on the problems which menace society.

The author has collected a large quantity of data on his subject or rather subjects, both from observation and from literature, and has presented it with a literary style which is strikingly vivid, and, if the adjective be not out of place in so serious a subject, entertaining. No doubt it is inevitable that one who feels as strongly as Dr. Lydston evidently does on these matters and has at the same time the gift of swift epigram, rounded period and thrilling climax should use them lavishly; but although his handling certainly makes the book attractively readable, one is tempted to question whether its ultimate effectiveness might not have been furthered by a rather different tone. These matters need thinking of, certainly, doubtless also need talking of as a fruit of the thinking and an aid to further thinking, but both thinking and talking need a dispassionate and judicial attitude, and even while we feel ourselves swayed by brilliant rhetoric we distrust, perhaps unjustly, its deftly phrased and confident conclusions.

THE OPEN-AIR TREATMENT OF PULMONARY TUBERCULOSIS. By F. W. BURTON-FANNING, M.D. Cantab., Physician to the Norfolk and Norwich Hospital, Honorary Visiting Physician to the Kelling Open-Air Sanatorium. Cassell and Company, Ltd., London, Paris, New York and Melbourne. W. T. Keener & Co., Chicago.

THIS little volume has on its title page a quotation from Sir Thomas Brown, the distinguished author of the Religio Medici, which serves to show very well how long ago thinking men more than suspected that the open-air treatment of tuberculosis was the ideal. In a letter to a friend, Sir Thomas said:

"Some think there were few consumptives in the old world, when men lived much upon milk; and that the ancient inhabitants of this island were less troubled with coughs when they went naked and slept in caves and woods, than men now in chambers and feather beds." This quotation is an excellent index of the suggestive value of this volume. There is scarcely any phase of the subject of pulmonary tuberculosis threadbare, though it apparently has been worn by writers in recent years, which does not take on an air of newness under Dr. Burton-Fanning's hands. Even the most veteran advocate of modern phthisio-therapy is sure to find something of value in the reading.

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ORIGINAL ARTICLES.

APPENDICOSTOMY AND CECOSTOMY IN THE TREATMENT OF CHRONIC COLITIS.[1]

BY WILLY MEYER, M.D.,

OF NEW YORK;

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IF in cases of chronic colitis and sigmoiditis internal medication and high medicinal irrigations have proved ineffectual, surgical means are indicated. Two methods are then at our disposal:

1. Temporary exclusion of the diseased part of the intestinal tract, by establishing an artificial cecal anus. This prevents absolutely all contents of the intestinal tract from coming into contact with the diseased mucous surface, and at the same time permits of the use of this artificial stoma to flush the colon.

2. Cecostomy or appendicostomy, *i.e.*, establishing a water-tight or at least but slightly leaking entrance into the very beginning of the large intestine for the sake of irrigation only, allowing the intestinal contents to run their usual course.

An artificial cecal anus invariably proves a great annoyance to the patient, principally on account of the intestinal contents being still liquid at this place; furthermore, a second operation is required for its closure. Hence, it stands to reason that neither surgeon nor patient will select this method until either of the simpler procedures, viz., cecostomy or appendicostomy has been tried. It is the latter two operations of which I shall briefly speak this evening.

Since October, 1902, I have made use of appendicostomy for obstinate chronic colitis, amebic as well as ulcerative, in four patients, and of cecostomy in one, a man in whom the appendix seemed of too small caliber to permit of thorough flushing.

Case I.—P. S., male; aged twenty-nine years; with multiple papilloma of the rectum, perhaps on basis of old specific disease. Entered hospital on May 2, 1902. Left inguinal colostomy according to Schede was done by one of my associates on July 10, 1902. On August 20, the rectum was resected with the help of the osteoplastic method of Rehn-Rydygier. When first seen by me in September, 1902, the wound was slowly closing; a posterior rectal fistula had become established at the site of the sutures. Further examination revealed a number of ulcerations and recurrent papillomata in the neighborhood of the internal opening of the fistula. The patient asked that the fistula be closed. Hence, on December 1 the osteoplastic flap was again turned back and a partially necrotic piece of the sacrum with coccyx removed. A large fistula, allowing the tip of my forefinger to pass, was found at the site of the suture. In order to reach the same it became necessary to make an additional resection of the sacrum, removing about one-half inch of it transversely. Then the fistula could be closed with a double row of chromicized catgut sutures, after freshening the edges. So far as the fistula was concerned, the patient did well; but retention of urine set in, due probably to some injury to the nerves of the bladder. The patient's general condition gradually improved, although he had to be catheterized at regular intervals daily. Eight months later he again passed his water voluntarily, having complete control, an occurrence well worth remembering. In course of time the inguinal colostomy wound became strictured, so that a second colostomy, somewhat further down, was performed by my colleague. After a time this new opening also began to functionate poorly. I personally have seen stricture of an artificial anus occur in syphilitic subjects only. This observation induced me to think also of specific disease in this case, although the previous history did not support such assumption and my colleague had found a papillomatous condition of the rectum at the time of the first operation.

When I resumed service at the hospital, in May, 1903, I found the patient much reduced, suffering from frequent diarrhea and hemorrhages. Appendicostomy was done on June 13; intermuscular incision, as usual. The appendix was long and thick, kinked in its middle by a band, and in a state of chronic inflammation throughout. After ligation and division of the mesoappendix in its distal half, the organ itself was fixed so that its base corresponded to the wound in the parietal peritoneum; continuous suture of the latter, running around the appendix, thus shutting off the peritoneal cavity. The abdominal wound having been closed in the usual way, the appendix projected about 1½ inch above the skin in the middle of the sutured wound; it was amputated and probably a little more retained than was necessary; it was found permeable. A bowknot was used to close the opening for twenty-four hours. The next day irrigation was commenced, solution of nitrate of silver 1-10,000, soon increasing in strength, and thymol 1-1,000 being used, alternating daily.

The patient's condition began to improve at once. The irrigations generally took from fifteen to twenty minutes, the entire amount of

[1] Read before the Section on Surgery of the New York Academy of Medicine, April 7, 1905.

solution being, as a rule, passed within that time, although, on some occasions, water was discharged through the strictured artificial anus a few hours later. The catheter was not left in place, but introduced for each flushing. After five months' treatment in combination with an antispecific regime, the patient had gained considerably in weight, his local trouble was much improved. Still, he was much annoyed and depressed in spirits by the presence of the artifi-

Fig. 1.

Case I.—Appendicostomy for amebic colitis. Appendix was large and thick, amputated about one quarter of an inch above surface of skin. Note the eversion of mucous membrane, a condition that can be avoided by dividing the organ close to the skin.

cial anus which, in spite of two plastic operations, had the tendency to contract. I therefore resolved to exclude the lower portion of the bowel beginning at the middle of the transverse colon. On January 4, 1904, after excision of the umbilicus, the abdomen was opened in the median line, the transverse colon brought into the wound, divided, its distal end closed by a double row of sutures, the proximal end fastened to the skin, thus excluding the lower half of the colon. The lumen of the gut here was very small and contracted, its walls were distinctly in a state of chronic inflammation; no papillomata were seen. The flushing of the ascending and half of the transverse colon through the appendicostomy wound was now much simplified. The new artificial anus in the median line performed its function nicely. Five weeks later, the patient was subjected to the ninth operation, excision of the lower half of the transverse and descending colon being done. In course of the operation an intra-abdominal, encapsulated abscess, apparently due to a suppurating gland within the mesocolon transversum, was encountered. In spite of immediate thorough disinfection, this seems to have been the cause of a septic peritonitis to which the patient succumbed on the sixth day after the operation.

On reviewing this case, I cannot but regret that I did not wait somewhat longer with the last operation. The patient had at last reached a point where he was fast improving, his intestinal tract down to the new artificial anus being in perfect order, and had he been given another year, his resisting power would unquestionably have been greater and he would have had altogether a better chance.

Case II.—F. R., male; aged twenty-three years. Amebic colitis. Lived in Egypt and Turkey for some time. Had been on the medical division of the German Hospital for obstinate diarrhea for five weeks in the early part of 1904. Intestinal disinfection, high medicinal irrigations in the knee-elbow posture, etc., produced an apparent cure. On November 28, 1904, patient reentered the hospital on account of a recurrence of the trouble. The number of stools varied from five to fifteen per day, being mixed with mucus and blood; patient complained of frequent abdominal cramps; much rectal tenesmus; had lost considerable flesh and strength. Examination of the feces established the amebic nature of the disease. In view of the obstinacy of the trouble I was requested by the attending physician, Dr. I. Adler, to perform appendicostomy.

Fig. 2.

Case II.—Appendicostomy for tuberculous colitis. Fistula is flush with skin; scar of latter appears broad toward Poupart's ligament on account of subcutaneous and subfascial suppuration, that had set in after retraction of stump of appendix below fascia of external oblique muscle, necessitating a short transverse incision downward. The organ must always be stitched to the skin by special sutures.

which was done on December 8. Intermuscular incision. Appendix well-formed, slightly thickened. Continuous suture of peritoneum, surrounding base of the organ. Ligation of distal part of meso-appendix down to the middle of the organ. Then typical layer sutures, appendix being made to emerge through the middle of the wound; finally a fine catgut suture on either side catches the appendicular wall and skin; bowknot ligation; division of the appendix with Paquelin's

cautery, about one-quarter inch above the surface of the abdominal wall. Removal of ligature after twenty-four hours; dressing of wound. Three days later a soft rubber catheter, No. 14 French, was easily introduced. Regular flushing of colon from this time on, nitrate of silver solution of increasing strength soon exchanged for a solution of sodium bicarbonate two per cent. and thymol, being used alternately, mornings and evenings. Improvement rapid; patient soon out of bed. Quite a large-sized tube can be easily pushed into the cecum. It is always removed after irrigation and a strip of gauze is introduced into the appendicular canal to prevent leakage. After five weeks of treatment irrigations are temporarily suspended, the patient feeling very well; examination revealed no ameba. A few weeks after this, in the latter part of February, the diarrhea suddenly returned and microscopical examination then showed the continued presence of the infecting agent. Flushing was resumed, twice a week, with thymol 1-1,000 and nitrate of silver

Fig. 3.

Case III.—Cecostomy (Kader-Gibson). Tube must be worn continuously in the fistulous tract, in order to avoid rapid contraction.

1-20,000. The amebæ again quickly disappear. To-day the stools are regular, once daily, well formed, ameba absent, general condition good. The fistula represents a large opening, projecting above the surface of the skin with some ectropion of the mucous membrane (see Fig. 1). This will always occur in patients having a large appendix, especially if it is amputated somewhat above the skin, as has been done in this case. The patient is ready to have the fistula closed. Cauterization of the everted mucous membrane and of the canal itself, will, I believe, suffice to accomplish this.

Case III.—M. S., aged twenty-one years. Tuberculous, ulcerative colitis. Father's brother died of pulmonary tuberculosis. The patient entered hospital for chronic diarrhea, on November 29, 1904. Six months ago, he had noticed blood in his stools. The number of stools gradually increased until he had three immediately after each meal, and also after every exertion of any severity. No pain during defecation, except some rectal tenesmus. Tubercle bacilli were not revealed by the microscope. Blood is bright red and fluid. He has lost some flesh and strength; is coughing slightly; has an incomplete fistula in ano. Internal treatment having been of no avail, the patient is transferred to the surgical division, where, also at the suggestion of Dr. Adler, I performed appendicostomy on December 24. Intermuscular incision. Appendix large, is stitched with its base to the peritoneum; it is again grasped with the suture closing the muscle wound; it is however, not attached to the skin; catgut bowknot about half inch above surface of latter; immediate division of appendix with Paquelin cautery. Slight rise of temperature on the night following operation. Two days later, first change of dressing in order to remove bowknot ligature. Stump has disappeared. It has slipped below the border of the skin, producing suppuration. Skin opened; loose tamponade. Two days later, under cocaine, the outer border of the skin is transversely divided to the extent of about three-quarters of an inch, in order to bring the line of the division of the appendix up to the surface of the skin. In trying to ascertain the cause of this mishap, it was found after opening the skin, that the line of division of the fascia of the external oblique muscle did not exactly correspond to that of the skin incision, the latter being about one-eighth inch further toward the umbilicus. This shows the importance of having the two incisions correspond exactly when doing appendicostomy. The accident further teaches the necessity of stitching the skin to the appendix itself.

The further observation of this case has given me a great deal of satisfaction and pleasure. At first we flushed the colon regularly with saline and a very mild solution of bichloride. However he did not do well under this treatment, had frequent pains and twice had a rather alarming intestinal hemorrhage. We then treated him on a strictly antituberculous basis, washing the bowel with saline solution first, then injecting pure balsam Peru, ½ oz. and iodoform emulsion, alternately. Internal administration of small amounts of tincture of laudanum to control the painful peristalsis; increasing doses of creosote internally; carefully selected diet; rest in bed. Under this treatment he has done wonderfully; the appetite has returned, the former profound anemia has improved; his diarrhea has ceased, stools occurring twice daily, being often formed; he has materially gained in weight; is out of bed. Entrance into appendix flush with skin, narrow, closed by a strip of gauze, no leakage (Fig. 2). At present, three months after the operation, rectoscope proves, however, the continued existence of the disease, at least in the lowest portion of the bowel, where the typical picture presents itself to the examining eye.

This case very nicely shows that even ulcerative colitis due to tuberculosis, this most rebellious and hopeless form of the disease, can be materially improved (if not perhaps even cured

in course of time), by flushing the colon. We shall certainly continue the treatment and keep the patient at the hospital as long as there is improvement.

Case III.—C. P., male, aged thirty-five years, admitted to hospital in November, 1904, on account of painful diarrhea. Has had diarrhea for the past three years; stools contain blood, pus and mucus. Has lost considerable flesh. This patient, too, has lived in southern countries for many years. No ameba are found. Rectoscopy shows a great number of disseminated ulcers throughout the entire rectum, presenting protruding granulations which are covered with muco-purulent deposits, a mucosa much inflamed. Usual treatment besides injections of mercury and internal administration of iodides bring relief; patient leaves hospital. Read-

Fig. 4.

Case IV.—Appendicostomy for specific colitis. Small fistulous appendicular opening in lower half of scar, persisting for two years and a half, without noticeable discharge or leakage. It is situated exactly within surface of skin, and admits No. 14 French scale after stretching.

mitted January 12, 1905, in great distress. Operation January 14: Intermuscular incision. Appendix adherent to cecum; very small; partially obliterated, therefore, could not be made use of. Amputation; inversion of stump. Cecostomy according to the Kader-Gibson method with a double row of silk sutures, well inverting the tube, which is fastened to the gut with a special catgut stitch. The second layer of inversion sutures are used to attach the visceral to the parietal peritoneum. Layer sutures of abdominal wall. Fascia nicked in its center, externally, to make way for the tube, which is stitched to the skin with silkworm gut. Careful irrigation from that time on with nitrate of silver and thymol solutions. The latter is not well borne, causing rectal burning and abdominal pain. The tube is worn continuously in order to avoid premature spontaneous closure of the cecal fistula; it fits watertight. (Fig. 3.) To-day the patient has much improved; he wishes to leave the hospital and return to work. He will be advised not to remove the tube, but to faithfully continue the irrigations at home, as rectoscopy, done a few days ago, still shows a few small scattered granulations, protruding above the otherwise normal mucous membrane.

Case IV.—C. N., female, aged fifty-three years. Patient had suffered from frequent diarrhea and pain for last two years; three months prior to her admission to the hospital in October, 1902, her symptoms had become aggravated. There were frequent, watery, extremely painful evacuations of exceedingly foul odor, accompanied by bloody discharge. She claimed to have lost 60 pounds in weight. Rectoscopy showed the lower bowel covered with numerous ulcers and, above these, a cock's comb-like granulating mass on the anterior wall. The disease was apparently of specific origin. The entire large intestine was tender on palpation, which fact, together with the patient's history and the great loss in weight and strength, made it seem probable that similar ulcers existed throughout the entire transverse and ascending colon. Appendicostomy was decided upon. On November 8, 1902, the abdomen was opened by means of an intermuscular incision. A comparatively small appendix was found. It was drawn upward, in an oblique direction, until it emerged in the lower angle of the wound, its tip projecting about one-half inch above the skin. The border of the meso-appendix, close to the appendix proper, was fastened to the subcutaneous tissue by a catgut stitch. It was not ligated, but wholly retained. The cecum was not sutured to the parietal peritoneum. The wound, including the skin was then closed by a continuous catgut suture layer by layer above the appendix. Two small strips of iodoform gauze are pushed alongside the appendix through the fascia wound. After proper protection, the tip of the appendix is cut off and a bougie introduced, which seems to have to overcome a few slight strictures. The tip is closed temporarily with a bowknot of catgut, so as to avoid soiling of the wound. Twenty-four hours later the two small strips of iodoform gauze together with the bowknot are removed. A small Nélaton catheter then passes with comparative ease and is at once used for irrigation, after which the tube is plugged and left in place. Regular daily flushing of the large intestine through this tube, beginning with a 1-10,000 silver nitrate solution followed by saline, the strength of the silver nitrate solution being gradually increased. Later the flushing was done every other day and the ulcerations in the rectum as well as ulcerating hemorrhoids were attended to locally. Protracted antisyphilitic treatment was given.

When patient was discharged from the hospital, on the first days of April, 1903, three months after the operation, the cut end of the appendix

was flush with the skin. She had gained 28 pounds in weight and her general health was much improved. For a time the treatment was continued at home, every other day; on the days on which the colon was not flushed, she had spontaneous stools without mucus, pus or blood. As the patient had encountered trouble in reintroducing the tube, I advised her wearing it continuously, which proved entirely satisfactory. The irrigations were carried out in the following manner: The patient placed herself upon a bedpan and, with a fountain syringe holding two quarts and raised about three feet, began flushing; three minutes later the rectum usually started to act and the entire two quarts were passed in about ten minutes. Rectoscopy at this time showed the mucous membrane to be perfectly normal. No leakage was observed on removal of the tube. The small appendicular opening acted exactly the same as the artificial openings made in the gastro-intestinal tract by the methods of Kader and Witzel.

The patient was presented before the New York Surgical Society on January 28, 1903, and her case has been fully described in a paper entitled "Appendicostomy (Weir) for the Treatment of Chronic Ulcerative Colitis." (Medical News, June 27, 1903).

In January, 1904, fourteen months after the operation, the tube was definitely removed and treatment stopped, the patient being, to all appearances, cured.

I did not see her again until six weeks ago. She stated that she had been in splendid condition until the early part of February of this year, when the old trouble, frequent thin evacuations mixed with blood and pus, set in again. Visual inspection of the rectum showed the lowest part free from ulcerations; but further up they could be seen forming a bleeding circle at the site of that cock's-comb-like granulation above described. Colonic flushing seemed again indicated and I thought of doing cecostomy now. However, on examining the abdominal scar, I discovered a slight irritation at the lower angle of the same and, on pressing upon the abdomen, a minute amount of moisture appeared. On closer investigation I found that the appendicular opening had not closed entirely, but still allowed a filiform bougie to pass. (Fig. 4.) After some stretching I succeeded in introducing a tube, No. 14 French scale.

The patient is now back at the hospital for further treatment, where irrigation is carried out every day. This experience shows that in an appendix thus used, and operated on, the opening may persist without causing annoyance to the patient, as a safety valve in the true sense of the word. Of course, had I at the time of definitely removing the tube, applied the pointed Paquelin cautery to the appendicular canal, the organ would have become closed beyond question, and there would have been no choice but to do now an additional cecostomy which might have proved rather difficult technically. As it was, I congratulated the patient on escaping this. This case certainly shows the tendency of the trouble in question to recur, and teaches the wisdom of not enforcing definite closure of the appendicular opening at too early a date.

With regard to the technic practised in this particular case, it is questionable whether it would be advisable to adopt the same generally, excellent though the functional results have proven in this instance, for, the proximal end of an appendix that is longer than the line in which it passes the abdominal wall, will necessarily remain within the abdominal cavity. In view of the possibility of a later attack of appendicitis, it might, therefore, seem wiser, from a surgical standpoint, always to pull up the base of the appendix to the wound in the parietal peritoneum. Then the proximal part of the organ will rest within the abdominal wall where it can do no serious harm, the distal end being cut off.

Referring to the technic of the operation in general, it might be advisable to stitch the place where the appendix enters the cecum, into the upper angle of the wound in the parietal peritoneum and to allow the appendix to pass the abdominal layers in an oblique direction so as to emerge at the lower angle of the skin wound. This would provide continuous drainage of the appendicular canal by gravity and allow the surgeon to preserve a longer portion of the organ, which means increasing the distance from the appendicular fistula to the cecum. Such procedure might perhaps afford a better chance of guarding against leakage, although the slight annoyance from this source is easily obviated by inserting a strip of gauze into the lumen after each irrigation, or by making the patient temporarily wear a gently pressing truss with a rubber pad filled with water or glycerin. Outside of this, closure of the abdominal wound by means of continuous layer sutures is simplified by having the appendix emerge at the lower angle of the skin wound instead of in the middle.

If the appendix is large, leakage may be still further reduced by reversing the above mentioned technic, in so far as to make the appendix emerge at the upper instead of the lower angle of the skin wound, thus giving it an upward course. But in cases of a small-sized appendix I consider it better to have the organ run in a direction obliquely downward; for the frequent introduction or continuous wearing of the tube might injure the mucous lining just distal to the junction of appendix and cecum, and produce a traumatic stricture in the course of the following rather protracted period of irrigation.

The tip of the appendix is best cut off at the close of the operation, with knife or scissors, after the proper dressings of the wound have been applied. If the canal should then be found constricted and refuse to yield to stretching, it is still time to reopen the wound, amputate and

invert the appendix and do an immediate cecostomy. If, however, the canal permits the passage of a flexible bougie, a catgut ligature with bowknot will close the lumen for the first twenty-four hours.

These five cases nicely demonstrate the great value of colon flushing in the various chronic affections of the large intestine, catarrhal, tuberculous, specific and amebic. Of course, in cases of chronic catarrh due to the presence of multiple papillomata, there is not much benefit to be derived from the treatment. They, further, show the excellence of Weir's idea of utilizing the appendix for this purpose, disproving the fear entertained by many, viz., that irrigation through a small tube would be unsatisfactory. If two quarts of fluid introduced through a tube, 14 mm. in circumference, can be made to pass the entire large intestine within ten minutes, this is, I think, all that can be expected.

In view of the obstinacy of ulcerative colitis in its various forms, and its tendency to recurrence, too much stress cannot be laid upon the advisability of keeping open the communication with the caput coli for a considerable length of time, and of insisting upon a properly selected diet in conjunction with rational internal medication. Both must assist the salubrious effect of colon flushing.

In closing I would say that I consider appendicostomy the operation of choice in all cases of obstinate, chronic colitis. It is simple, safe and effective, and the same is true of the after-treatment. I would, therefore, give it the preference over cecostomy in all cases in which the appendix is passable.

A CONTRIBUTION TO THE STUDY OF CHRONIC NICOTINE INTOXICATION OF THE NERVOUS SYSTEM.

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"The survival of the fittest" in the attempt at accommodation on the part of nerve centers and peripheral nerves to the insidious effects of the active principle of tobacco, is probably the explanation of the comparatively scant consideration the subject has received in our leading textbooks on nervous disease, in their discussion of the chronic intoxications.

Theoretically, tobacco tolerance might be produced in either of two ways: (1) By compensation, through the formation of antitoxins in the organism, or (2) by a destruction of the poison through oxidation. In view of the fact that aggravation of minor symptoms due to the habitual use of tobacco is so frequently co-incident with suboxidation caused by independent factors, the latter hypothesis would seem the more probable one.

The derivation of the word nicotine is perhaps more universally known in France than in this country. The etymologist traces it back to the name of Jean Nicot, Seigneur de Villemain, French Ambassador in Lisbon, who lived in the second half of the sixteenth century, and was one of the first importers of tobacco into France. A French monk, who had brought the weed with him from Brazil, about 1556, made the first but unsuccessful attempt at culture in his native province. A few years later the Ambassador presented the ground powder to the Grand Prior in Lisbon, and to Queen Catherine de Medici, in Paris, as a remedy for her migraine. The therapeutical effects history omits, but we know that the queen was well pleased with the gift, that she became an inveterate smoker, and that the plant was commonly called the Queen's herb. Another and more prevalent name for it was Nicotiane. The name under which it was destined to descend through the centuries is of much disputed and unproven origin. "Nicotine" has survived as the designation of the active principle of the tobacco leaf, an acrid, volatile, colorless liquid, of pungent taste and penetrating odor. Chemically, nicotine is an alkaloid, distinguished by its entire lack of oxygen ($C_{10}H_{14}N_2$). The essential oil of tobacco consists almost entirely of nicotine.

The remarkable variance of living authorities on the tobacco question involves perhaps a problem of atavism; for the early enthusiasts seem to have met with a no less energetic tribe of relentless foes, each side recruiting from the ranks of kings, popes and physicians. A very complete historical sketch introduces the subject of nicotine and tobacco poisoning in a monograph published by Dr. Fonssard in 1876.[1]

The greater susceptibility of the male, as roughly representing the smoking half of humanity, to certain diseases of the nervous system, such as tabes, general paralysis, muscular atrophy type Duchenne, cerebral congestion, encephalitis, hypochondriasis, etc., has been ascribed to the indiscriminate use of tobacco, by one of its radical opponents.[2]

The extinction of sexual desire and the destruction of reproductive force is claimed by Solly[3] as an inexorable result of tobacco used in excess.

It is significant that the minor and decidedly unpleasant concomitants of tobacco indulgence, such as dryness of the throat, dyspepsia, laryngitis and pharyngitis, last, not least, nervous irritability along the individual lines of least resistance, do not prove a more efficient bar to persons bent on penetrating into the precincts hallowed to the full-fledged connoisseur. There is little doubt but that the secret of its hold on the user—we all know that it is not easily relinquished—lies in its retardation of the metamorphosis of nitrogenous tissues. Like alcohol, tobacco retards tissue waste; and that is after all what humanity instinctively craves for.

1 De l'Empoisonnement par la nicotine et le Tabac. E. Fonssard. Paris, 1876.
2 Du Tabac, Son influence sur la Santé et sur les Facultés Intellectuelles et Morales. Druhen, Besançon, 1867.
3 Lancet, February, 57.

A certain degree of tolerance for the alkaloid, physiological in the adult, is easily raised, by continued use, in the average healthy individual. Were this due to the formation of antitoxins the old smoker would become practically nicotine-proof. Unfortunately, this is far from being the case. Time and again, patients will come under observation whose symptoms permit but of one interpretation: Failure of accommodation to the toxin of tobacco, dating from the gradual development of suboxidation, so common at the time, "when the fires begin to burn low." On the other hand, many a hale and hearty octogenarian, generally an old tar, whose ruddy cheeks and bright eyes shine from sunrise to sunset through a cloud of "fragrant" smoke, loudly proclaims the fact that the seed of nicotine poisoning will not thrive in a soil thoroughly oxygenated and redolent with nervous vitality constantly renewed, irrespective of calendar reckoning.

The following histories of two patients are given as an illustration of what is meant by failure of accommodation on the part of the nervous system to the habitual absorption of the tobacco alkaloid:

Case I.—Male, aged fifty-one years; merchant; Spaniard. Has always been a moderate smoker, beginning at about twelve years of age. Never felt harmful effects. He came to Cuba when thirty-six years old, and soon fell into the continuous smoking habit of the country, substituting at the same time a stronger brand of tobacco. Never smoked more than eight or ten cigars daily. About this time he was married. He gradually began to develop nervous symptoms, such as uncontrollable restlessness, a tendency to introspection, a nasal tic, and especially a tremor accompanied by discomfort in the thumb of his left hand. This was so marked that it prevented him from steadying the writing paper on his desk. Patient attributed the symptom to the fact that his attention had been called continually to his hand by the apprehensions of his wife. At the age of seven years, the patient had been successfuly operated upon for a supernumerary digit; and the wife feared an eventual transmission of the congenital deformity to her unborn child. In trying to soothe her his mind naturally dwelt on this particular region, thus perhaps determining the manifestation of the nicotine intoxication to this part. He also suffered from a chronic nasal catarrh, a gastric dyspepsia, and an irritation of the mucous lining of the upper intestinal tract; had several attacks of mucous colitis. The symptoms persisted for thirteen years, with marked remissions. During this time, five children were born, none of whom inherited the deformity. After the last birth, an exceptionally difficult one, it was decided to limit the family. Patient ascribed his rapidly increasing nervousness, dyspnea, sometimes with irregularity or increased frequency of the heart's action, a tendency to nightmares, and a now well-marked tremor of both hands, affecting especially the two middle fingers, to the practice of coitus interruptus. In this view he had been confirmed by two physicians, who had also told him, in explanation of his palpitation, that he had "irritable sexual heart." Patient had not had syphilis, and had always abstained from alcohol. He was a man of youthful appearance for his years (51), except his hair, which is quite grizzled. Of the tall, spare type, not a superfluous ounce of flesh, but looks fairly healthy and well nourished. Eyes clear and rather brilliant, complexion sallow, tongue very red, skin hot and dry. Intermittent tachycardia (86-134). No palpable arterio-sclerosis. No arcus senilis. Pupils dilated. Patellar reflexes exaggerated. Mental condition good, except for a tendency to hypochondria. No complaint of failing memory. Genito-urinary system normal. Family history negative.

Patient came for advice on account of failing energy and self reliance. Had met with business reverses, and was anxious to work in order to improve the prospects of his family. He felt that he was not old enough for resignation, but appreciated that he was rapidly going down hill.

My diagnosis might have been neurasthenia (which should be made reluctantly only) in the evident absence of organic, or other functional nervous disease. The nicotine intoxication I might have overlooked, or at least underrated, but for an incidental remark of the patient's, bearing on his eldest son, a boy fourteen years of age, who claimed to become temporarily blind as soon as he smoked more than half a cigar at a time. This tobacco amaurosis on the boy's part led me to seek the source of the man's nervous manifestations in his continued use of tobacco, to which he had become intolerant by a disturbance of his nervous adjustment to the alkaloid. The results of treatment—gradual but not total withdrawal of tobacco, combined with certain medicaments—justified the diagnosis. Good effects were obtained from the use of the bromides and also the pulvis camphoræ in pill form.

Opinions differ as to the antagonistic action of strychnine and nicotine. (As a matter of fact, death is produced by either poison through paralysis of the respiratory apparatus.) In this particular instance, strychnine was contraindicated on account of its aphrodisiac effect on an individual already above par sexually in both desire and power. This state of affairs in an old smoker does not agree with observations made by Dr. Depierris, and published in his work on Social Philosophy, under the title of Le Tabac, etc.[1] None of his experiments, however, were carried out for a length of time sufficient to allow for the establishment of tolerance. Moreover, they were made on very young animals, while a *sine qua non* for nicotine accommodation is a fully developed and perfectly matured nervous system, with its infinite capacity for adjustment to extraneous influences.

1 Paris, Flammarion, 1898.

Case II.—Female, aged forty-six years; of Belgian parentage; married to a native Cuban. Family history negative. Began smoking at about fourteen years of age, in the convent school where she was brought up. (The use of tobacco is practically universal in Belgium and Holland.) Had learned the profession of lace-maker, but did not keep this up in Cuba, her trade being ruined by the competition of cheaper Spanish lace. She married and attended to her household duties, remaining in fair health, with the exception of a chronic dyspepsia, with flatulency and also diarrhea. Insisted that all her symptoms were invariably relieved by a smoke. She accordingly smoked nearly all the time, using cigarettes and cigars indiscriminately, and taking all that was offered from the cigar cases of her friends. Suffered from dyspnea and palpitation, whenever obliged to move rapidly, or mount a flight of stairs. Notwithstanding these symptoms and her digestive difficulties, she had always considered herself fairly well. The trouble began when occasion arose for her to demonstrate a complicated lace pattern for business purposes. She then discovered that her fingers trembled too much for her to throw the bobinets around with the fine accuracy needed in preventing the delicate threads from becoming tangled. Prolonged effort only aggravated the condition, and a renewed attempt after a good rest again met with failure. She then realized that the tremor antedated its accidental discovery by a period of about one year. Fearing "paralysis," she sought professional advice and presented herself for treatment. Patient was a fairly well built and nourished woman, looking about fifty-six years old. Face flabby and sallow. Pupils contracted; sclera yellowish; tongue coated; no tachycardia. Pulse 98. Some evidence of arteriosclerosis in temporals and radials. Area of hepatic percussion dulness increased. Skin all over body looked and felt greasy. Hemorrhoids. No gynecological examination. Patient believed herself pregnant, ascribing to this her attacks of nausea and diarrhea. (She already had a record of eleven children.) Patellar reflexes normal. Mental condition sluggish, but not apathetic. The general condition of the patient did not appear to warrant the diagnosis of fatty infiltration of the liver, although she did present some of the minor symptoms. On the other hand, the coarse tremor of both hands, taken in conjunction with the gastro-intestinal catarrh, the palpitation, and the dyspnea, were at least suggestive of nicotine intolerance developing as an accompanying phenomenon of deficient oxidation. The approaching climacteric could well be interpreted as a predisposing factor. The patient absolutely refused to entertain the idea of tobacco being the source of her troubles, but she consented to give it up for one month, as an experiment. Meanwhile she was given internally the sulphate of strychnine in pill form, and also citrated caffeine. At the end of seventeen days she reported entire relief from the palpitation, and a marked improvement of the diarrhea. For the first time in six years she had ventured to eat some tropical fruit, without disastrous results. The dyspnea persisted and so did the tremor. Her strychnine pills were increased in strength, until she took the thirtieth part of a grain three times daily. At the end of the month the tremor had subsided to such an extent that her hands again obeyed her will in the construction of the very intricate lace pattern. A slight remaining tremulousness and slowness of movement, as patient was readily made to understand, were referable to the disuse of years, and her ambition to win a prize in the lacemakers' contest assisted the treatment to such an extent that at the end of six weeks she could be considered as cured, so far at least as the symptoms were concerned which had begun to trouble her, and which would in all probability have multiplied, if the daily dosing of an organism laboring under imperfect oxidation had been allowed to go on to the complete establishment of nicotine intolerance.

In the selection of the above two histories, care has been taken to limit the discussion of chronic nicotine poisoning to individuals who had used tobacco for periods extending over thirty-one and thirty-nine years, respectively. During the maintenance of fair general health the adjustment of the nervous system to the alkaloid seemed perfect, or nearly so, whereas the phenomena of failing nervous vitality due to the absorption of nicotine came to the front as soon as an additional nox from within or without turned the balance-beam, as it were, and interfered with accommodation.

A SUMMARY OF TWENTY-FIVE RADICAL OPERATIONS UPON THE RECTUM UNDER LOCAL (STERILE-WATER) ANESTHESIA.[1]

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It is not the purpose of this brief paper to present the literature of sterile-water anesthesia, nor to discuss the technic of the method; but rather, by a terse recital of personal experience, again to direct attention to the subject, and to emphasize as forcibly as the limitations of my vocabulary will permit, its surpassing practical importance to us as co-workers in the field of proctology.

When Dr. Gant read his essay before this body at Atlantic City last June,[2] as the majority of you will recall, it was received with open incredulity, and the very free discussion following consisted of little else than criticism. The writer confesses to having been both doubter and critic. But a few days' observation of the practical workings of the method in the hands of its originator quickly

1 Read before the American Proctologic Society, Pittsburg, May 6, 1905.

2 "Sterile Water Anesthesia in the Operative Treatment of Anorectal Disease," Medical Record, October 29, 1904.

brought conviction. Dr. Gant was doing exactly what he claimed—from the standpoint of freedom from pain even more than he claimed—both in his office and clinic. The question now was, could I do in Nashville what he was doing in New York? The doubt was inspired chiefly by the simplicity of the method. It looked too easy. But it was what I wanted and needed, and I determined to at least give the method an honest trial. The result appears in the subjoined summary of cases. I should observe, however, that some care was exercised in the selection of cases, particularly in my earlier experience. When conditions or complications of unusual severity were encountered, I preferred to operate under general anesthesia. Increasing experience has caused a corresponding decrease in the frequency of such choice.

The operations performed under sterile-water anesthesia may be grouped as follows: Internal hemorrhoids, 15; prolapsus ani, 2; anal fissure, 2; external hemorrhoids, 6.

Of the fifteen cases of internal hemorrhoids, one was operated at my office, five (out of town patients) at the hospital, three at my clinic, and the remaining six at the several homes of the patients. Complaint of pain sufficient to attract attention was observed in only two cases. One of these occurred in an anemic, hysterical young woman, who, judging from her vociferations, suffered more than all the others of the series combined. The pathology in her case consisted of a single medium-sized tumor, easily reached and quickly removed. I was impressed at the time, and in the light of later experiences am convinced, that her suffering was largely psychic.

The other case attended by pain was met with in an old gentleman sixty-five years of age, of nervous temperament and unstable mentality, who also probably exaggerated the extent of his suffering. The pathology in this case, however, would have rendered it a severe test of the method in a more favorable subject. The tumors, four in number, were of long standing, unusual in size, and composed largely of fibrous tissue, rendering complete distention difficult and necessarily more or less painful. This patient had endured his condition for more than one-third of a century rather than submit to chloroform or ether. When he came into my hands general anesthesia was positively contraindicated by the constitutional conditions present.

The ligature operation was performed in all of the fifteen cases. The time required for each operation averaged about ten minutes. The number of tumors removed varied from one to five, average three. The average time of confinement to bed was less than two days. The average period of detention from business was approximately five days. After pain in all cases was practically eliminated with the exception of the few hours immediately following operation.

The fifteen patients comprising this group are numbered among the stanchest friends and adherents I have made in an active practice of almost as many years.

The two cases of prolapsus ani were the results in both instances of vicious cicatrization following fistula operations. The offending mucosa was ligated in segments and cut away. One patient was operated on at my office, the other at her home. The pain in both cases was trivial; results satisfactory.

It was only after closely observing the action of the sterile water method in a number of internal hemorrhoid cases that I could persuade myself to try it in lesions involving the more sensitive areas, *i.e.*, fissure and external hemorrhoids. Its action was equally as beneficent and satisfactory in each of the eight cases composing these two groups. Some little momentary pain marked the insertion of the needle and the distention of the tissues, but the further steps of the operations were entirely painless in every instance. Incision was the operative procedure resorted to in the fissure cases. Five of the six external hemorrhoid cases were of the thrombotic variety and were treated by incision, evacuation of the clot, and packing. The sixth case was a hypertrophied skin tag, treated by excision.

From the foregoing series of cases I feel warranted in drawing the following conclusions:

1. The method is simple, safe and effective.

2. Pain at the time of operation is so rarely encountered as to be exceptional.

3. Postoperative pain is inconsiderable—less by far than after the old methods.

4. Confinement to bed and detention from business are reduced more than 50 per cent.

5. Operations under this method are practically bloodless and secondary hemorrhage could scarcely occur except as the result of faulty technic.

6. It offers a reliable means of extending the benefits of surgery to a large class of cases which otherwise would be unsuitable for operation.

7. It robs these operations of their terror. Patients will consent readily and eagerly to a radical procedure, if only they can escape chloroform and ether, and even in the exceptional case where some pain is inflicted, will invariably express genuine gratitude at having been spared the customary dreaded ordeal.

In connection with the above several points, the crowning advantage of the sterile-water method should again be noted and emphasized, namely, that while doing away entirely with general anesthesia, with all its discomforts and dangers, it involves no abandonment of principle or sacrifice of thoroughness with reference to the operation performed. Even if the pain were uniformly considerable and the period of convalescence increased instead of diminished, this feature alone would mark the method as a distinct and noteworthy improvement, and should assure its welcome by surgeon as well as patient.

Summing up my personal experience with the sterile-water method, I would say that it has been

satisfactory beyond my fondest hopes. No accidents or complications of any kind have been encountered, and the results in every instance have been all that could be desired. If the promise of the past seven months' experience with the method is borne out in the future, I shall hope to extend its field of application until general anesthesia in rectal surgery in my hands becomes the rare exception instead of the general rule.

The truth is, Mr. President and fellows, that the great majority of the more common lesions of the rectum and anus properly belong to the domain of minor surgery. Among these lesions internal hemorrhoids is undoubtedly the one most frequently encountered. Speaking for myself, after an experience of more than three hundred operations for this malady under general anesthesia, I do not hesitate to say that, if the limitations of the sterile-water method were such as to restrict its employment to internal hemorrhoids alone, I should still regard it as one of the most signal advances which rectal surgery has ever made.

PRESIDENTIAL ADDRESS: THE INSANE IN CANADA.

BY T. J. W. BURGESS, M.D.,
OF MONTREAL, CANADA.

(Continued from Page 357.)

Instead, let me call your attention to another topic, briefly referred to by Dr. Blumer, in the line of prevention of the increase of insanity—the exclusion of defective immigrants. I do so for two reasons. Firstly, because during the past two years the influx of strangers into Canada has been so enormously increased; and secondly, because Canadian immigration laws, being much less stringent than those of the United States, our land is being flooded by a class of degenerates, many of whom, if not already insane, soon become so.

That a country so vast as ours should be much more densely peopled is a "consummation devoutly to be wished," but the question of number, desirable as it may be, is secondary to the character of the people who are being added to our population. The sturdy agriculturists and artisans of the British Isles, healthy alike in body and mind, always furnish a welcome addition to our ranks, but unhappily quite a large number of the immigrants brought to us are of a low standard of mentality, some of them even having been inmates of asylums before coming to this country. Such a condition, amid new environments and under new conditions of existence, is almost sure to lead to mental strain and insanity. The result is that these incompetents, many of them consisting of the scum and dregs of an overcrowded European population, are crowding our provincial hospitals, especially those of Ontario, Manitoba and British Columbia, to which provinces immigration has been largest, and those contiguous to large seaports, such as Montreal. Most of our institutions have a larger *percentage* of foreigners than is found among the native population, and while the greater number of the foreign-born inmates are legitimately there, having broken down mentally after they had earned a residence, there is in every asylum a proportion who should never have been brought to our shores. Some of these have come of their own accord, but it is evident from the statements of the patients themselves that in certain cases parochial boards, benevolent societies, municipalities, and even relatives, have sent out persons simply as the cheapest way of getting rid of them. The cost of a ticket is small compared to a lifetime's maintenance in an asylum, a poorhouse, or at home. The late Dr. R. M. Bucke, in giving his evidence before a Commission appointed to inquire into this subject, thus forcibly and truthfully expressed himself: "There are associations formed in England for bringing out to Canada what are called gutter children from the slums of England, Scotland and Ireland. Thousands are brought out by these organizations. This is scandalous and should not be allowed to go on. These people might as well collect smallpox and typhoid fever and send them out. It is just adding so much more to the number for which we have to provide, because so many of them are degenerates." But a few months ago it was proposed in London to form an organization for the emigration on a gigantic scale of British pauper babies and young children, and a meeting was convened at Mansion House under the auspices of the Lord Mayor, to discuss the subject. Canadians generally and naturally object to the establishment of British workhouse farms in Canada under the control of British poor law guardians for the reception of English foundlings, and, I am thankful to say, the Canadian Government withheld its approval of the scheme.

As typical of the class of persons sent out by their friends to get rid of them, let me read you a description of a batch of these defectives who had become hospital residents and were deported to Liverpool. It is from a report of the asylum in British Columbia, where this custom has been very common, I suppose, on the principle that the farther away a ne'er-do-weel is shipped the less likelihood of his return. "All these cases were illustrations of a practice too much in vogue in Great Britain, of shipping off to the colonies weak-minded young persons who are unmanageable at home, and unable to make a career for themselves, or earn a livelihood there. 'He has continued his wild and reckless conduct, and has now been shipped off to the colonies,' is a phrase made use of in the *Journal of Mental Science*, in a description of a case of the kind now in question. But if a patient of the sort here described is unable, with the assistance and supervision of his friends and relatives, to steer a straight course and make a position for himself in the Old Country, still less is he likely, when left to himself, to be able to cope with the strug-

gles and difficulties of Colonial life. Of the five cases above mentioned, in one the patient was of feeble intellect and the insanity strongly hereditary, in another the patient was obviously weak-minded originally, a third was a pronounced epileptic with consequent mania, and two others, a brother and a sister, suffered from strong family taint. The brother had been previously for three years in an English County Asylum, and the sister had suffered from an attack of insanity before coming out here. The brother had only been four days in the Province when he again became insane and was sent to the asylum. He was two years and one month in the Province, the whole of which time, except four days, he spent in the asylum at Government expense.

"It is hard upon the Colonies that the mother country should 'ship off' these waifs and strays, these victims of 'borderland insanity,' to become, as they almost inevitably must do, when thrown on their own resources out here, confirmed lunatics, who have to be maintained at the expense of the community."

That Canada is being made a "dumping ground" for the degenerates of Europe it needs only a glance at our general and asylum statistics to show. Few, however, realize the extent of the burden thus imposed upon our charities. Only those whose duty brings them in contact with the defective classes can fully grasp how urgent it is that greater restrictions should surround the admission of undesirable immigrants. Even conservative England, which has always prided itself on being held wide open as a refuge for the poor and oppressed of all nations, is becoming aroused to the necessity of raising a barrier against unrestricted immigration. The evils have become so palpably evident there, during the past few years, that the average Briton, once heartily in favor of admitting any and every one to his country, is now crying out against it, and the last Royal Commission on Alien Immigration, which was appointed in 1902 and presented its report last autumn, recommended the establishment of an immigration department, similar to that of the United States, for the purpose of debarring and repatriating "undesirables."

In proof that what I have said is no exaggeration of the ill-effects attendant upon immigration insufficiently safeguarded, let me call your attention to some figures bearing on the subject. By the census of 1901 the population of Canada was 5,371,315, the number of foreign born being 699,500; the total of the insane was 16,622, and of these 2,878 were foreigners. From these returns it will be seen that a little over thirteen per cent. of the general population—that is to say the imported element—furnished over seventeen per cent. of so-called Canadian lunacy. Stated in another form, if the native Canadians alone are considered, there is one insane person in every 339 of the population; while the proportion among the foreign element alone is one in every 243.

If further evidence were needed I would say that during the year 1903 there were admitted to Canadian asylums 2,213 insane persons. Of this number 1,726 were born in Canada. The remaining portion 487, representing 22 per cent. of the admissions, was foreign born. At Verdun, 2,048 patients have been received since the opening of the establishment, and of this number forty per cent. were of foreign birth. In the same institution there are at the present time no less than thirty persons, in a population of four hundred and sixty, who, if subjected to anything but the most cursory examination, would never have been allowed to set foot in the Dominion of Canada.

The cause of this load being foisted upon us is not hard to find. It lies in the laxness of our immigration acts which do not demand a certificate of good bodily and mental health from each person landing, and which limit the period during which such parties may be deported to one year.

No effort should be spared to relieve the Dominion of such an incubus, and the remedy is in our own hands. It consists in the passing of stringent laws providing for a full knowledge of the past history of every alien seeking our shores. The true place to prevent the coming of the dangerous immigrant is not at the port of entry but at that of departure. Each person preparing to emigrate to Canada should be rigidly examined by salaried medical officers, appointed by the Dominion Government, as to his mental fitness at the time of examination, and should also show proof that he has never been insane or epileptic, and that his parents have never been affected with insanity. If found to fulfil all the legal requirements, a sworn certificate, containing his full personal description and vouching for his mental and physical health, should be given him. Without such a certificate he should not be allowed to land, and the vessel bringing him should be obliged to take him back on its return trip at the expense of the owners. The health officers at our ports should, in addition, be clothed with authority to reject any immigrant on arrival if circumstances, developed during his passage, should demand it, and instead of one year, the period of probation during which an immigrant might be returned to his own country if afflicted with insanity, unless surely due to causes arising after his arrival, should be extended to two or even three years.

Doubtless such legislation would be bitterly opposed by steamship companies as tending to lessen the number of their steerage passengers, and by irresponsible emigration agents who send out every soul they can for the sake of the commission received on ocean and railway tickets. But the interests of the State should be paramount to such selfishness, and the Government should insist that Canada, while a hospitable refuge for the deserving poor, be not made an asylum for the diseased and defective.

Canadian requirements, speaking generally, are many. The most pressing, to my mind, are separate accommodations for idiots, epileptics, inebriates and the criminal insane; proper means for the segregation of the tuberculous; some provision for the temporary relief of friendless convalescents; and the abolition of political patronage in asylum affairs.

In the matter of proper and sufficient accommodation for idiots and imbeciles, Canada is wofully behindhand, there being in the whole Dominion, not a single institution for these classes conducted on the lines that modern science and experience have found most satisfactory and successful. In all the provinces, with the exception of Ontario, the feeble-minded, which is a generic term now used to include all degrees of idiocy and imbecility, if provided for at all, are housed in poorhouses and other establishments which provide for sane persons as well, or are mixed up with the insane population of the lunatic asylums. Ontario alone has attempted any adequate provision, and even she, from a spirit of false economy, has allowed a once promising institution to drift backward.

The care, training and education of the mentally defective is an accepted public duty, and should be undertaken by the State at public cost, at least to the extent of providing the necessary institutions and schools for their care and teaching.

Mere custodial care, even if provided in separate establishments, does not meet the requirements of the case, it being admitted by all who have made the interests of this class a life study, that any effort made in the direction of bettering their condition is useless unless a training school is combined with the custodial asylum. Surely it is just as essential to educate the imbecile as it is to educate the deaf-mute or the blind. To allow him to grow up without education or "habit-training," is simply to allow him to degenerate into a repulsive, helpless creature, often so brutal in his propensities that, for the protection of the public, he has to be placed in custody. Of the milder types, many of the boys commit crime and find their way to reformatories: the girls fall from the paths of virtue, become mothers, and bring forth children more feeble-minded than the parent. The education, however, as well as the method of imparting it, must be made to suit the incomplete mental organization with which we have to deal. Even the least weak-minded are generally unable to profit, to any extent, by the instruction of ordinary schools, and often they suffer unmerited hardship at the hands of teachers, who, ignorant of the mental defect, attribute backwardness to laziness or perversity. So well is this fact recognized that the public schools of New York, Philadelphia, Boston and Baltimore are organizing special classes for backward and feeble-minded children. Cognizant of the same thing, the Royal Commission on the Care and Control of the Feeble-minded, recently sitting in London, England, expressed the opinion that the provisions of the Defective Children's Act of 1899, by which the school authorities are permitted to compel the parents of feeble-minded children to send them to special certified schools for suitable instruction, should be made compulsory.

The ultimate aim and object in the teaching of the feeble-minded being to fit them, as far as possible, to become useful men and women, it necessarily follows that school teaching should be followed by manual training. Imbecile children, when they have acquired such elementary education as their limited abilities will permit them to assimilate, should be set to learn some useful trade, by the practice of which they may become at least partially self-sustaining. It is in the industrial departments of the large establishments for the training of imbeciles that one sees what the better class of these unfortunates is capable of learning, and what really good workmen many of them become under the supervision of patient and intelligent instructors.

It was the lack of manual training that constituted the great barrier to further progression in the Ontario institution, to which I have alluded as the only one of the kind in the Dominion. As early as 1872, Mr. J. W. Langmuir, then Inspector of Asylums, urged the creation of an asylum for idiots which should consist of two distinct departments, one a training school for young idiots, the other a custodial department for the safe-keeping of adult idiots who were unsafe to be at large. By the adoption of the second portion of Mr. Langmuir's scheme the Ontario Government established the first custodial asylum for idiots on the continent. Later, a teaching department was added, and for several years Dr. Beaton, the Superintendent, was enthusiastic in his praise of the good results attained. Ere long, however, he discovered that it would be impossible to secure any permanent benefit if manual training was not made to go hand in hand with mental and physical culture. Time and again he appealed to the Government for the provision of industrial instructors, but all in vain. In addition, his staff of teachers was reduced to such an extent that, in 1902, the training school had to be discontinued. In concluding his report for that year, Dr. Beaton says, "It is to be hoped that they (the schools) will soon be reopened with a capable staff of teachers and instructors, and that the institution and schools will not only be placed on the popular footing of years ago, but far in advance." I am sorry to say that this hope has not yet been realized.

With the reports that many imbeciles, after training, are independently capable of earning their own livelihood, I am not prepared to agree. Without continuous supervision little can be expected from them no matter how highly trained and educated they may be; their whole disposition and temperament, away from control, in the vast majority of instances completely negatives the

supposition. A few improvable cases may be rendered capable of earning a modest competence, but a few, and only a very few, are successful. In nine cases out of ten when such cases are said to earn their own living, it will be found that they have some advantages in the line of continued supervision. There can be no doubt, therefore, that it is the duty of the State to provide some means of permanent guardianship for these cases if friendless, and the need could be admirably met by the creation, in all institutions for the feeble-minded, of a separate department for improvable cases, who, after having undergone their period of training, could be drafted into workshops of various kinds, or do farm and garden work under the supervision of an inspector. In this way they could be made in a large measure self-supporting,—perhaps even a source of revenue to the State. The model institution outlined by Dr. W. W. Ireland, than whom we have no higher authority, would consist of three separate departments; a custodial department for the extreme and non-educable class; an educational department for those capable of being taught and trained; and a semi-custodial department for those whose education and training has been completed; these three departments to be distinct buildings at a moderate distance apart, but all under the same superintendence.

As respects special accommodation for epileptics, Canada is even worse off than she is in that for the feeble-minded, because, up to this date, no separate provision whatever has been made for them. Like the idiot they have either been kept at home, confined in poorhouses, or scattered through the various wards of insane asylums. Every principle of justice and humanity is opposed to the indiscriminate mingling of epileptics, lunatics and paupers, and Ontario, to her credit be it said, has already taken steps to right this wrong by founding an epileptic asylum at Woodstock. This, it is expected, will be ready for occupation during the present year, certainly not before it is urgently required, since, by statistics compiled by Dr. Russell, of the Hamilton Asylum, in 1893, there were at that date no less than 292 epileptics among 4,251 asylum residents, with probably more than double that number scattered through the country, a burden to their friends and a menace to the public.

The peculiarities and requirements of epileptics are such as to characterize them as a distinct class, for whose well-being separate accommodation is necessary. Only under such circumstances can they receive that special care in the way of occupation, diet and moral treatment that their condition demands; only in that way can we spare our insane patients the annoyance arising from the paroxysms of their disease, their irritability and the violent outbursts of maniacal excitement to which many of them are subject. That the insane epileptic is properly a State charge every person agrees, but the same cannot be said of those who are sane. Personally, however, I am of the opinion that all epileptics ought to be under proper care and treatment, and to a certain degree under control, and if these requirements cannot be supplied by the friends, then, both for the patient's sake and for that of the community in which he resides, provision should be made for him by the State. The boundary line between sanity and insanity in the case of most epileptics is a very narrow one, and our Provincial Governments would do well to follow the example of the United States, Germany and other countries where timely care of the epileptic often prevents his passing into the category of the insane.

According to the best modern authorities employment is a *sine qua non* in the treatment of epilepsy. Those in touch with epileptics all maintain that the fits tend to disappear during working hours. Dr. Spratling, of Craig Colony, is strongly of this opinion and states: "On holidays and on rainy days, when patients were compelled to stay indoors and could not engage in any occupation, the number of seizures was doubled." In this point of view the colony system undoubtedly offers the best mode of care for the victims of the "sacred disease." In colonies a variety of trades can be carried on to advantage, and, if a sufficiency of land be secured, floriculture, fruit-growing, and market-gardening, all of which are among the best forms of occupation for epileptics, both male and female, can be made sources of profit. In this way the colonists are enabled to contribute in some degree toward their own maintenance. Probably the most promising plan to meet all requirements, at least expense, is that advised by the Manchester and Chorlton Joint Asylums Committee, whereby one portion of a large estate is set apart for the accommodation of sane epileptics, another portion for those who are imbecile or insane.

The equity and wisdom of separating the criminal insane from those innocent of wrong-doing cannot be disputed. In Canada, however, we have no provision for such segregation, and the asylum authorities are obliged to receive not only all criminal lunatics but all insane criminals on the expiration of their penal sentences. The former evil, bad as it is, is dwarfed by the latter, because patients of this type, as a rule, retain all their criminal instincts and are among the most vicious and depraved of the human race. The presence of such patients in the wards of an ordinary asylum is a standing menace to the peace and discipline of the whole institution. In their sane moments, they never had the most distant ideas of the rights of property, and seldom placed any value on human life when it stood in the way of the prosecution of their criminal designs; when insane, these traits are intensified, because what little power of self-control they had is generally lost and the fear of punishment for their misdeeds is banished. The more an or-

dinary lunatic improves, the more easily he is managed, whereas the more rational an insane criminal becomes the more dangerous he is. If taunted by their fellow-patients, as is apt to be the case, such lunatics are prone to violence; in addition they are constantly making efforts to escape, and safeguards have to be provided against their accomplishing their purpose. In this way the innocent are made to suffer for the guilty, because we cannot fully carry out the modern idea which discourages the use of bars and locks, in fact everything that partakes of the nature of a prison. Many of the insane retain all their self-respect and object to associate with this class of patients, while their friends, quite rightly, feel it a grievous wrong to have their unfortunate relatives housed with men and women who have been deliberately guilty of crime, and who, while undergoing punishment for such crime, have been overtaken by insanity. Rockwood Hospital suffers most from this cause owing to its contiguity to the penitentiary, and its Superintendent, Dr. C. K. Clarke, who has long and strenuously protested against it, forcibly concludes his report for 1903, in these words: "People outside of institutions do not care to associate with instinctive criminals—there is no reason why the non-vicious insane should be forced to accept a companionship that would be repulsive in everyday life."

The following motion presented by Dr. Pliny Earle, and adopted by this Association in 1873, applies forcibly to Canada at the present day: "Resolved, That when the number of this class in any State (or in any two or more adjoining States that will unite in this project) is sufficient to justify such a course, these cases should be placed in a hospital specially provided for the insane, and that until this can be done, they should be treated in a hospital connected with some prison, and not in the wards or in separate buildings upon any part of the grounds of an ordinary hospital for the insane."

The former is undeniably the better plan, and, if Ontario be taken as an index to the existing state of affairs in the Dominion, there is certainly a large enough proportion of the criminal classes of the insane to warrant the creation of a special asylum for them. In 1899 there were in the asylums of that province no less than 77 criminal lunatics guilty of offenses but acquitted by the courts on the ground of insanity: the number of lunatic criminals would probably at least equal this; and there must be a large number of like cases in the other provinces. For the Federal Government to erect an institution for the reception of these cases, taxing the various provinces in proportion to the patients they send, would seem to me the best and most economical way to meet the requirements. Failing this, all such patients should be kept in the penitentiary asylums, which should be open not only to insane criminals, whether their sentences have expired or not, but to the criminal insane as well. Criminality alone should be the criterion for the separation of these people from the ordinary insane.[1]

For some years a conviction has been steadily growing in the minds of physicians and the general public that Canada is behindhand in the lack of any provision for the care and control of inebriates belonging to the lower ranks of society. In 1875 the Province of Ontario took steps toward providing for these unfortunates but the good intention was abandoned. To my mind there is no doubt that the custodial care and treatment of inebriates is a question of the gravest importance, and that the establishment and maintenance of a hospital for this purpose fall within the true sphere of the Government. The great barrier to the creation of such an institution has been the threadbare cry, the "liberty of the subject," but the rights of the individual should be subordinate to the rights of society. We are told that the inebriate by his drunkenness violates no law, and this may be so. But, are we, therefore, justified in allowing him to continue his debauchery until he commits a crime, as so many of them do, while many more are only by the merest accident kept from so doing? If a lunatic threatens suicide or the life of a fellow-citizen, we put the law in force and confine him, without, as a rule, waiting until he has made an attempt on his own life or committed a homicide. It should be the same with an inebriate.

The distinction between drunkenness and insanity has frequently been the subject of forensic investigation, but it is daily becoming more and more evident to the profession, and to some extent to the laity, that inebriety and dipsomania are diseases of the brain, resembling, if not in some cases constituting, true insanity. That an individual should in all other matters appear to be of sound mind, but that at certain times he should be subject to a morbid desire to reduce himself below the level of the beast by means of drink, is hard to grasp, but none the less true. Equally true is it, as shown by recent German studies, that the continuous use of alcohol to excess produces certain molecular changes in the brain cortex, which are apt to be permanent. The result is a lowering of the moral tone, a dulling of the mental powers, and a weakening of the will, which constitute an organized, progressive degeneration. Nor is the ill-effect of the excessive use of alcohol confined to the individual himself. There is strong evidence to show that the children of intemperate parents

[1] The following paragraph, published in one of the daily newspapers in January last, furnishes a striking example of the need of special provision for insane criminals: "Samuel Jarvis, who shot a Windsor policeman last week, escaped last summer from Rockwood Asylum, where he had been placed after his release from the Penitentiary, on the completion of a third term. The greater part of the past seventeen years has been spent by him behind prison walls. Until recently Jarvis was in the penitentiary insane ward. When the time of such prisoners has expired the law requires that they be placed in an asylum. This was done in the case of Jarvis, who was transferred from the penal institution on one hill of Portsmouth to the institution for the insane on the other. He had not been there more than a month before he decided to escape, and this he succeeded in doing. All attempts to locate him were futile."

inherit a marked tendency to intemperance, insanity, idiocy, epilepsy, or some other form of mental disorder. Such eminent authorities as Prof. Kräpelin, of Heidelberg, and Prof. Berkley, of Johns Hopkins University, agree in considering alcohol as a powerful factor in the production of insanity, the latter going so far as to say, in his work on mental diseases, "Of all the varied inciting causes of mental infirmities, heredity and alcohol are most important." Personally I would go still further and say that, in the majority of cases at least, inebriety itself is a mental disease,—a true psychological condition. If, as has been done, we define an insane person to be, "one who owing to perverted or deficient mental powers, the result of functional or organic disease of the brain, cannot adapt himself to his natural environment, and whose conduct is not in a sufficient degree guided and restrained by the ordinary safeguards of society," we include a large section of those at present known as habitual drunkards. But whether prepared to go thus far or not, I think there are few who will not agree that alcohol does much more harm in the way of producing mental degradation in the many who are never placed under care, than in the few who now find their way into asylums. Everyone is acquainted with men and women whose mental powers are so shattered by long-continued indulgence in drink that they have reached the borderland between sanity and insanity, even if they have not overstepped it.

To try to reform this class by any other means than personal restraint is "wasting our sweetness on the desert air." They must be placed in custody in an institution, the superintendent of which is clothed with authority to detain his patients for an indefinite length of time. In other words, the same policy in respect to their personal liberty should prevail, as now prevails in respect to lunatics. It matters not what the form of commitment be, provided it is statutory and means a definite and prolonged term of oversight and treatment. This treatment should be conducted in a special establishment where work of various kinds,—one of the best of remedies,—can be enforced after the necessary medical regimen has paved the way for it. In this manner the cost of maintenance would be greatly lessened.

As early as 1833, Dr. Woodward, soon after taking charge of the Worcester Insane Asylum, in Massachusetts, urged that inebriates be regarded as insane and sent to the asylum for special treatment, but this is manifestly wrong. To associate the ordinary lunatic with the inebriates, even if we consider the latter to be truly insane, is an injustice to both. In the words of Dr. Joseph Workman, "Inebriates are soon dissatisfied, and strongly disposed to magnify the causes of dissatisfaction which the discipline of an insane hospital unavoidably presents,—this dissatisfaction becomes contagious. One inebriate can upset the quiet and comfort of a whole ward."

In view of the declaration of modern science that tuberculosis is a communicable, preventable, and curable disease, the non-provision of proper means for separating the phthisical from the non-phthisical insane might almost be called criminal, and yet in only one of our Canadian institutions, Rockwood, is there any special arrangement for such segregation. In all the other hospitals the medical officers have to combat the plague as best they can by attending to cleanliness, disinfection, and the isolation of the affected as far as possible. So much, however, has been written on the subject of tuberculosis during the past few years that I shall not detain you with any detailed account of my own views on any of the points connected therewith, but content myself by saying that I doubt whether, owing to the rigor of our climate, the "tent treatment," so successfully practised by Dr. A. E. Macdonald, at the Manhatten State Hospital, East, would be practicable with us during the winter months. Instead, I would favor the erection of a separate, isolated building, to be used for tuberculous cases only, one portion of the structure being set apart for suspected cases, another for those in whom the presence of the malady in an active state has been positively established. Such a building should be frame, and constructed as inexpensively as possible, so that, if its destruction on account of infection seemed advisable, the loss would be slight.

An important problem confronts the superintendents of Canadian hospitals, as it does those of the United States, in the case of the discharge of friendless patients. This is the securing of homes and employment for them. Who of us but can call to mind cases where the discharge of patients, though fully warranted by their mental condition, has been delayed for weeks, even for months, because they had no friends who could or would take charge of them on their return to the world, no homes to go to, no employment awaiting them by which they could earn their bread? The average citizen seems to have a morbid dread of the poor unfortunate who has been insane, and utterly refuses to even think of hiring him, while his wife is equally resolute against engaging as a domestic any woman who has been an asylum inmate. To turn such persons adrift without means or help is virtually offering a premium for their return to the hospital, whereas, if given some slight assistance they might earn a fair living and not again become a charge on the public.

"'Tis not enough to help the fallen up,
But to support him after."

Criminals discharged from prisons and reformatories are helped and encouraged by Prisoners' Aid Societies, often, indeed, assisted by the State with gifts of clothing and money. Fallen women are taken in hand by societies with a view to their reformation. Orphans are housed, educated and clothed by the charitable. Only for the poor creatures who have emerged from the gloom of

dethroned reason is there no helping hand, no assistance of any kind. The best remedy for this pitiful state of affairs is to be found in the organization of "After-Care Associations for the Insane," such as exist in France (which country was the pioneer in this branch of philanthropy), Switzerland, Italy, Germany and Great Britain. These associations would have to be the outcome of private enterprise, because the Governments of the several Provinces have already as much as they can do to provide for those actually insane. Doubtless, however, if once started by private benevolence and brought to a successful issue, State aid would not be wanting to help the good work along.

Last but certainly not least of the wants to which I would call attention is the abolition of political patronage in the matter of hospital appointments and the administration of hospital affairs. The "spoils doctrine" which decrees that "office is a reward for political service," has done much to keep down the record of scientific work in Canadian hospitals for the insane. Merit has had little weight, especially in Ontario, as against "political pull," and the consequence is that almost two-thirds of our existing asylums are directed by superintendents destitute of special training prior to their appointment. That men taken from the ranks of the general profession do sometimes prove themselves admirable asylum officials, I do not dispute. But what I do maintain is that the principle is wrong. To subject the care of the insane to political purposes is a flagrant injustice to the patients, who should be afforded the best possible chance for recovery; to the tax-payer, who should receive the best value for the money he pays for their support; and to deserving juniors who are thereby debarred from all chance of promotion. Superintendents are made, not born, and it requires years of conscientious study to acquire a knowledge of how to deal satisfactorily with the manifold problems of psychiatry. Moreover, assistants generally take their cue from the superintendent, and if the superintendent be not specially trained for his work and take no active interest in it, his subordinates will almost inevitably lapse into routine. Nor can we blame them much that such should be the case. With no example set them, no prospect of advancement to cheer and encourage them to put forth their best efforts, what else could we expect?

Were the "spoils system" confined to the appointment of the heads of asylums the resulting ills would be lessened. Unfortunately it is not. Every medical office connected with our asylums, from the highest to the lowest, is regarded as "political pap" to be administered where it will do most good for the dominant party. Governments are unable or unwilling to grasp the fact that the scientific study of psychiatry consists primarily in the study of mental phenomena, and that this can only be done to advantage by men specially trained for such study. As a result, well-developed seniors, who have been failures in life, are often given the junior places that should be awarded only to young men who have shown interest in, and capacity for, original research. This is manifestly unfair both to the inmates of our asylums and the superintendents thereof. "Responsibility and authority must go hand in hand," is a time-honored axiom, but the system of governmental appointment of assistants furnishes the anomaly of superintendents, held responsible for the successful management of their hospitals, and yet deprived of the authority to appoint the officers upon whom such success in great measure depends. Surely a superintendent should be best capable of judging of the fitness and competency of his assistants, and it comports with common sense that he will, if only through self-interest, endeavor to procure the best he can find.

A vigorous editorial, "Insanity and Politics," recently published in the *Montreal Medical Journal*, deals so searchingly with the ills of political patronage in our asylum service that I may be pardoned if I quote a portion of it: "Most persons will admit unless they are incapacitated by congenital perversion, or political prejudice, that a hospital for the insane exists—pun or no pun—for the purpose of extending hospitality to the insane, and not to the protégés of a political party. In short, it is mental not political degeneracy which entitles an entrance to the enjoyment of such hospitality as it can offer. In Canada, there are to-day eighteen hospitals for the insane, and all but six exist for the combined care of the insane and the politicians. In twelve the present superintendents owe their appointment to influences other than their attainments in psychiatry.

"The answer which the politicians make to all protests is that the men who occupy the posts of assistants are not sufficiently qualified to become superintendents. This is partly true, and because it is partly true the case is the worse; because, if there are incompetent men among the assistants, it was the politicians who put them there. But the answer is inadequate, because, in spite of the politicians there are enough good men in the service to fill every vacancy which may occur during this generation. The wonder is that there are any remaining, when they have seen themselves passed over time and again by men whose attainments were unproven. The rewards of the specialty of psychiatry are small enough, and should not be filched away. The injustice is not chiefly to the men who have spent a lifetime in acquiring a knowledge of the insane, of their diseases and of their treatment; it is to the wretched insane themselves, who are deprived of that experience which might aid in their recovery.

"We yield to none in our admiration of the general practitioner. We are aware of his energy, his resource and his fidelity, but not even the general practitioner will lay claim to a capa-

city for treating off-hand and to the best advantage grave lesions of the eye and ear, or of the more secret parts of the body. He should adopt the same attitude toward the brain. In time it will come to be a shameful thing for a general practitioner to accept a position for which he is not qualified, since thereby he is committing a wrong toward his colleagues and toward his patients.

"The ideal service is that which prevails in New York. The superintendent is appointed by the Board of Management, and he must be selected from men who have served at least five years in an institution for the insane, and have proved their capacity and instinct for such work. The assistants in turn are appointed by the superintendents and they obtain advancement according to their merits, no step in advance being made unless the candidate has had previous experience in the specialty, and proved his fitness by passing an examination before promotion."

Nor is it solely in the way of appointments and promotion that our Provincial Governments have shown themselves remiss. The good men in the asylum service, and good men there be, are, in most instances, hampered by the want of proper equipment and the paucity of the medical staff employed. It is the duty of the State to aid in every way the attempts of its physicians to do scientific work. Only so can they be stimulated to keep pace with the trend of modern research in other countries,—only so can we guarantee that our patients will be under the care of ever-widening experience. Hitherto the governmental policy has been to provide little or no equipment for study, and so to limit the number of physicians that the greater part of their time is taken up with clerical duties. The numbing effect of such routine work is great, and might well make the average assistant adopt the words of Mr. Mantalini and pronounce life "one demd horrid grind."

Before we can properly enter on the study of psychiatry, as we ought to do, our governments must learn that to make a hospital a center of scientific research its physicians should be appointed from the best class of men; should be paid sufficiently well to free them from anxiety as to their future livelihood; should be certain of promotion if they prove themselves fitted therefor; should be assured of a retiring allowance, graduated on length of service, as is the case in England and other transatlantic countries; should be freed from an overburden of routine work; and should be provided with books, apparatus and assistance to properly pursue their researches.

Much more might be said on this and other subjects relating to the care of the insane in Canada, for example, the necessity of separate hospitals for acute cases and of pavilions connected with general hospitals, of nurses' homes, and of retiring allowances for medical and other officers, but I fear you will already have applied to me the old Spanish saying anent a tedious writer,—"He leaves no ink in his inkpot." I shall, therefore, no longer trespass on your forbearance, but content myself by saying in conclusion, that while with respect to custodial care and ordinary treatment, moral and medical, Canada, generally speaking, is well up to the times, she is doing little toward the solution of the many problems connected with the scientific aspects of insanity. In this respect she presents but a sorry picture when compared with the good work being done in many hospitals elsewhere. To stand still is to fall behind. The universal motto should be,—

"'Press on—' for in the grave there is no work
And no device.'—Press on while yet ye may."

THE NATURAL AND ARTIFICIAL PROTECTION OF MAN AGAINST TUBERCULOSIS.*†

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The faculty which the bacillus of Koch has of producing an infectious disease depends on many and various factors, which are represented on one hand by the property the said bacillus possesses, of multiplying and diffusing itself throughout the organism which shelters it, and of producing toxin, which has local effect at the point of development and generally throughout the entire organism; on the other, by the degree of resistance, congenital or acquired, which the organic cells present to the bacterium.

Very numerous are the ways by which this widely spread bacillus daily menaces the public health, and we must not have too much faith in the protection which the integrity of our teguments opposes to it; the skin and the mucous membranes show continually small cracks which may become ways of entrance. The tonsils by their anatomical structure are receptacles for the bacilli, which, in contact with the lymphatic elements, have easy access to the interior.

In the lungs, notwithstanding that the "Epitelie Vibratili" (ciliated epithelium) with its movements is the same tissue, it opposes a certain resistance to the invasion of the bacillus. Also these germs introduced by respiration into the alveoli are easily absorbed by the lymphatic glands, and that without any previous grave lesions of the alveoli.

The normal secretion of the stomach has no appreciable influence on the attenuation of the bacillus of tuberculosis, which, entering the stomach with the food, can pass unaltered into the intestines, where, whether by the great number of lymphatic glands, or by the wealth of fluid lymphatic elements, it finds more than anywhere else the most favorable conditions for the development of the disease.

The organism with its teguments does not

* From the Institute for the Study and Cure of Tuberculosis and other Infectious Diseases, Genoa.

† Read at First Annual meeting of the National Association for the Study and Prevention of Tuberculosis, Washington, D. C., May 19, 1905.

offer sufficient protection against tuberculous infection, and we have seen that there are many easy ways of entrance at the disposition of this terrible germ, which, widely diffused throughout nature, comes in daily contact with our skin. We absorb it into our lungs with the air we breathe; we introduce it into our stomach with our food; yet, notwithstanding the many and easy ways of infection, not every person becomes tuberculous, which proves that the body, in spite of the insufficient means of resistance of the teguments, possesses in its intimate nature specific defensive energies which prevent the bacillus from penetrating into the interior and from multiplying, and which neutralize the action of its secretions—substances antibacterial and substances antitoxic; substances which, acting together, constitute that phenomenon called immunity.

If, however, an organism endowed with these specific substances is exempt from a tuberculous infection of medium violence, it will not be so from an ultra-violent infection, and also it might, at certain moments, if the harmonious functions of its tissues be interrupted, find itself an easy prey to these bacilli, hence the great value of prophylactic rules, and of the hygiene of living and of alimentation, to protect it from tuberculosis.

If we think, however, of the immense number of tuberculous people who continually sow abroad the infectious virus by means of expectoration, and of the difficulties of the financial conditions with which the greater number of people are confronted, we find ourselves before an insurmountable barrier in our attempt to put these individuals in good conditions of life and alimentation.

Hygiene, food and air, potent and useful means of defense against tuberculous infection, are not, because of the actual conditions of society, rigorously applicable, and so we cannot depend absolutely on them in the struggle against tuberculosis. With time certainly, with the diffusion among the masses of hygienic rules, and with the financial amelioration of certain social classes, these defensive means will acquire greater utility. For the present we must depend on the organism.

The antitoxins, the antibodies, elaborated in the cells of our tissues, are the best means of protection against tuberculous infection, and their presence in a great number of individuals is perhaps the only reason why, with such a diffusion of virus, a great many people do not become a prey to the bacillus of Koch. To engraft these means of protection into the organism is, at the present, the surest means of fighting against tuberculosis, and the easiest method which is now at our disposal.

The bacillus of Koch penetrates into the organism, fixes itself upon an organ, where it develops and produces its special toxin, which has a local action, and also an action on the distant organs, disturbing and preventing the normal functions of the tissues, depriving them of their vitality and so predisposing them to excessive infection of the same, or even of a different nature. Not only the toxins, but also the dead bodies of the bacilli exercise a like deleterious action on the tissues.

It is to the neutralization of the action of this toxin that Maragliano first turned his attention by the introduction in therapeutics of a serum possessed of a high antitoxic value, obtaining as a secondary result also a bactericidal action, since the cellular elements having become insensible to the deleterious action of the bacterial toxins by means of these antitoxins, artificially introduced, can exercise their normal bactericidal energy, which is in all the tissues.

It is with this means that Maragliano in 1894 succeeded in rendering animals immune against experimental tuberculosis and combating vigorously human tuberculosis, if in a curable condition.

Maragliano afterward thought that besides these substances capable of neutralizing the bacterial toxins, one could inoculate with substances directly "bactericidal." One would have in the result of these means of defense that force of resistance which is called immunity.

Following his advice, and under his guidance, I, with Marzagalli, sought to obtain sera strongly bactericidal, injecting into animals the living tubercle bacilli; and we have observed that by making subcutaneous injections of this pulp of bacilli into rabbits, goats and cows, these animals produce in their serum large quantities of substances which combat the bacillus of tuberculosis. These sera are capable, *in vitro*, of preventing the development of the bacillus of tuberculosis.

In vivo, if one injects into experimental animals, rabbits, guinea-pigs, the bacillus of tuberculosis, supplemented by this serum, the animals do not contract the disease; while equal doses of the same bacillus, supplemented with physiological serum, give, in the same kind of animals, acute, mortal tuberculosis.[1]

The sera so prepared have a high protective and "immunizing" power.

Animals of different species, treated prophylactically with these sera become refractory to an excessive infection of tuberculosis by endovenous injection certainly fatal to animals not so treated.[2]

Hypodermic injections of this serum have a high specific therapeutic value in the tuberculosis of man and animals. Monkeys, which have become tuberculous normally, or by direct infection, are completely cured by it.[3]

Doctor Ricci has had most favorable results in patients affected with lymphatic tuberculosis, and with pulmonary tuberculosis.[4]

Doctor Ghedini has experimented on the action of these sera on experimental tuberculosis of the joints and has found that local in-

jections are capable of making the disease, already in a very advanced state, regress, even to a complete cure.[5]

Not only in the serum but in the corpuscles of the blood,[6] and in the milk drawn from these animals,[7] one finds these specific substances, which, administered by the mouth, become absorbed in the digestive tract and are capable of favorably influencing a tuberculous infection in man, even to complete cure.[8]

In animals, young or old, in healthy children or adults, administered by the mouth, they become absorbed in the digestive tube and excite in the serum of these individuals the formation of specific defensive means in such quantities that all the animals experimented upon when infected in the veins by doses of tubercle bacilli capable of killing in a very short time animals not so treated, victoriously overcome the infection.

As the result of these experiments, confirmed by other observers, whom for brevity I omit to quote, is shown the possibility we now possess of exciting in individuals who are poor, or absolutely without means, the formation of a natural protection against tuberculosis; a natural protection which we can produce by subcutaneous injections of serum obtained from animals treated with pulp of bacilli and with bacillary toxins; or by administering by the mouth milk or blood obtained from the same animals. Whichever be the means adopted, the results are about equal. By subcutaneous administration, the effects are more rapid, although in administration by the mouth these defensive energies very soon begin to show themselves in the serum.

In order to administer these specific substances to human beings by the mouth, the already mentioned experimenters and myself have used a preparation of the Institute for the Study and Cure of Tuberculosis much appreciated by physicians. This preparation, called "Emoantitossina Sofos," is only a solution of antitoxic and bactericidal substances which can be preserved indefinitely, and which by the addition of aromatic substances excites the gastric functions, and becomes very agreeable to the palate.

Having thus accepted the possibility of creating an immunity against tuberculosis, by administering specific defensive substances, I wanted to see if it would be possible to produce an active immunity in laboratory animals by injecting directly into the animals which I wished to render immune attenuated bacilli or bacillary extracts.

This second method of "immunization" is called by almost all the authors "active immunization," while the method first used is called "passive immunization. For convenience of diction one may use these expressions, though, biologically speaking, this distinction does not exist, because, even in the so-called passive immunity it is the organism which actively participates in the formation of defensive substances under the exciting and stimulating action of the antitoxins and of the bactericidal substances, which we introduce.

As animals for experiment I used six monkeys. In four of these monkeys I injected into the veins, in emulsions of physiological serum, a minimum quantity of very slightly virulent tubercle bacilli.

These monkeys did not show any local reactions whatever, nor general derangement. They had no fever nor did they lose weight. Three months after these injections, in order to ascertain whether these endovenous injections of bacilli, which had proved innocuous, had had a preventive and vaccinating action, I injected into the veins of these four monkeys, and also into the other two, an emulsion of the most virulent tubercle bacilli. All the monkeys contracted an acute tuberculous infection which brought them rapidly to death. The monkeys treated with the preventive injections died first, and then the others. At the autopsy all of them presented the characteristic lesions of acute tuberculosis.

Also rabbits, which I attempted to render immune with subcutaneous injections of attenuated bacilli, which were incapable of producing infection, and which did not provoke any reaction, local or general, showed no resistance whatever to experimental infection. Rabbits treated preventively, as well as others not so treated, contracted a diffused tuberculosis which killed them.

These experiments did not certainly authorize us to reject completely this method of rendering immune. It may be that new methods and great experience will show some utility in it. I, for the moment, must say that I have obtained no immunizing effect on monkeys or on rabbits. On the contrary, according to the results of my experience, these injections had an effect predisposing to infection.

In conclusion, I can now affirm that if we have not succeeded in immunizing animals against tuberculosis with living cultures, it is experimentally ascertained that we can produce this immunity by injecting subcutaneously, or administering by the mouth, specific substances taken from animals treated for that purpose. As serum, blood and milk have this property, certainly the flesh of these animals will possess it. These for the present are the sole means on which we can count for the cure of tuberculosis, by rendering immune the children of tuberculous people and individuals who are predisposed to it. It is only by widely practised preventive immunizing that we can hope to stop the spread of tuberculosis.

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DERMOID CYSTS OF THE MEDIASTINUM.

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Sarcomata and carcinomata of the mediastinal structures are of comparatively infrequent occurrence; much rarer, however, are dermoid cysts in this region, and particularly in this country, where only five cases have been reported, does this assertion seem to hold good. Within the last few years a number of cases of mediastinal dermoid have been recorded in foreign journals, notably German, and four in our own. Because of the paucity of cases, in addition to the extreme importance of correct diagnosis from a therapeutic standpoint, it is incumbent upon those in a position to observe patients suffering with this malady, to render the fullest possible account of their findings, in order that a more accurate and widespread knowledge of the affection may be obtained. To assist in accomplishing this end, it has seemed that it might be advantageous to give, together with my own case,† abstracts of those which I have been able to find in the literature, with an analysis of the same.

C. R., male, aged twenty-three years, American, unmarried, a railroad man by occupation, entered the out-patient department of the University Hospital July 19, 1904, complaining of cough, expectoration of large quantities of foul-smelling sputum, and hemorrhages from the lungs. From certain points in the history and objective examination which will appear presently, I diagnosed the conditon as probable dermoid cyst of the thorax, hesitating to make the diagnosis unqualifiedly, as I was not aware of similar cases. The patient was advised to enter the hospital as an in-patient; this was impossible at the time, but on July 27, 1904, he returned and was admitted to the medical ward. The folowing notes were made:

Family History.—Father is living and well. Mother has had "stomach trouble" nearly all her life but is in good health at present. The patient has two brothers and three sisters alive and well. One aunt on the father's side died of "hemorrhages from the lungs and dropsy"; nothing more definite is known of her case. Otherwise the family history is negative.

Personal History.—As a child the patient was very well. He had "measles," "chicken-pox," and a mild attack of "diphtheria" or "tonsilitis"; in all instances recovery was uneventful At the age of twelve the patient had a diarrhea which persisted about a year. Since then the patient has been in good health until the onset of the present trouble. His habits are good.

History of the present disease.—About nine years ago (eight years according to out-patient history), the patient had a severe attack of "pneumonia" on the left side, followed by a feeling of tightness across the chest and pain on breathing; the latter was localized to an area about the size of the hand in the praecordial region. Prior to the pneumonia, the patient was *struck over the heart* by a drunken man and ascribes the penumonia which soon followed to the blow which he received. Between the time when he was struck and the development of the pneumonia, he had *neuralgic pains in the region of the heart and in the left shoulder.* A year later the patient had another attack of "pneumonia" which lasted about eight weeks. During a coughing fit a large quantity of "pus" was brought up at one time ("over a quart"). The "abscess" or "empyema" discharged three times within three or four days. The patient describes the so-called pus as a "yellow, semi-fluid material." After raising this he became much better but has coughed and expectorated a good deal ever since. Four years ago the patient had a very severe hemorrhage from the lungs and has had a few since then. He says they are brought on by severe paroxysms of coughing or straining. They occur about every six months. At times the hemorrhages amount to about one pint. During the last three years the patient has noticed a "rotten" odor to the sputum. In March, 1904, he went to Colorado for his health. He was examined and told that he had empyema; operation was advised. This the patient did not submit to. No tubercle bacilli were found in his sputum at this time. For some time the patient *has coughed up hairs* in his sputum; these are from one to six inches long. Since last March (1904) there has been some soreness over the right side of the chest. Expectoration is much more profuse when the patient is lying down. He has not lost weight.

Status præsens.—July 29, 1904. Temperature has been normal since admission. At 8 A.M. respirations 20, pulse 72, regular, of fair size and tension; no sclerosis of the arteries. Patient looks very well nourished. Active dorsal position, mind clear, expression natural. Strong frame, rather short and stocky build. Panniculus moderate in amount, muscles large and rather soft. The skin is of good color, smooth, dry, and elastic; no edema at the ankles. There are no stiff joints. Lymph glands above left clavicle and behind the left sterno-cleido-mastoid are slightly enlarged; otherwise negative. The pupils are equal; react well. Sclerotics are clear, slightly bluish. Conjunctivæ and lips are of good color. The teeth are in good repair; the tongue is large, clean, and moist. Neck is negative.

The thorax is well formed, the left side being, if anything, slightly fuller than the right.

* From the Clinic of Internal Medicine, Dr. Dock.
† A Case of Dermoid Cyst of the Mediastinum. *The Physician and Surgeon* (Detroit and Ann Arbor), Vol. XXVII, p. 21, 1905. Reported before the Washtenaw County Medical Society, at Ann Arbor, October 12, 1904.

Fig. 1*a*. Morris (56). Light shading represents relative dulness and diminished vesicular breathing. Dark shading represents absolute heart dulness.

Fig. 1*b*. Morris (56). Light shading represents relative dulness and weakened vesicular breatbing.

Fig. 2. Buchner (3). Shading represents absolute dulness with bronchial breatbing and ringing râles.

Fig. 3*a*. Virchow (12). Shading represents absolute dulness, absence of breath sounds and pectoral fremitus.

Fig. 3*b*. Virchow (12). Shading represents absolute dulness and absence of breath sounds and fremitus.

Fig. 4*a*. Godlee (24). Shading represents dulness with absence of all breathing sounds.

Fig. 4*b*. Godlee (24). Shading represents dulness with absence of all breathing sounds.

Fig. 5. Kraus, Jores (32). Shading represents absolute dulness, absence of breath sounds and fremitus.

Fig. 6*a*. Dardignac (34). Shading represents absolute dulness and absence of breath sounds.

Fig. 6*b*. Dardignac (34). Shading represents absolute dulness and absence of breath sounds.

Fig. 7*a*. Ekehorn (37). Shading represents absolute dulness, weakened vesicular, and absent fremitus.

Fig. 7*b*. Ekehorn (37). Shading represents absolute dulness, weakened vesicular, and absent fremitus.

Fig. 8. Foucher (43). Shading represents absolute dulness and absence of breathing sounds.

Fig. 9*a*. Türk (48). Shading represents absolute dulness, compression breathing, absent fremitus, and weakened bronchophony.

Fig. 9*b*. Türk (48). Shading represents absolute dulness, compression breathing, and absent fremitus.

Fig. 10*a*. Dangschat (50). Shading represents absolute dulness, with other signs of pleurisy with effusion.

Fig. 10*b*. Dangschat (50). Shading represents absolute dulness, with other signs of pleurisy with effusion.

Fig. 11*a*. Dangschat, von Eiselberg (51). Shading represents dulness and weakened vesicular.

Fig. 11*b*. Dangschat, von Eiselberg (51). Shading represents dulness and weakened vesicular.

The epigastric angle is about a right angle. Expansion is rather small, slightly less on the left side, especially on deep breathing. This change is more noticeable in the lower part of the thorax. The clavicles are equally prominent. On percussion the apices are of equal height, about 1⅛ inches above the clavicles. Above the second rib the percussion note is the same on the two sides. Below this level the note is somewhat hyperresonant on the right with relative dullness (see Figure 1) throughout the left front, *the upper border sloping downward into the left axilla. Traube's space is clear.* There is no absolute liver dulness. The lung-liver border is on the sixth rib in the right nipple line and extends straight around. On deep inspiration the lung descends to the seventh rib. Auscultation above the right clavicle gives rather harsh vesicular breathing with fairly high-pitched sibilant râles on inspiration; below the clavicle, throughout the right side there is moderately strong vesicular breathing with no adventitious sounds. Above the left clavicle the vesicular is obscured by sonorous rhonchi which are heard both on inspiration and expiration. Below the left clavicle there is harsh vesicular breathing accompanied by dry râles of medium pitch, the vibrations of which can be felt on palpation. Below a line drawn from the left nipple to the anterior axillary fold, the vesicular is very weak and toward the end of inspiration a few crepitant râles are heard. Auscultation of spoken voice: slightly weakened between second and fourth ribs on left; vocal fremitus absent here.

Back.—Apices of lungs are of equal height on percussion. Below the level of the spine of the eighth dorsal vertebra there is relative dulness on the left side; this is continuous with that previously described in the axilla. In other respects percussion is negative. The upper border of relative dulness is not altered by change in the position of the patient. Auscultation reveals fair vesicular throughout the right back and on the left side down to the dull area where it is weakened. Pectoral fremitus is slightly weaker on the left side below. Ausculation of spoken voice is negative behind.

Heart.—Apex is best felt in the fourth intercostal space in the nipple line. A slight pulsation, which was forcible enough to be palpated, was seen in the second and third interspaces at the beginning of the examination. Absolute heart dulness begins on the fourth rib and extends outward to the apex; on the right it extends to the left edge of the sternum. To the left of, and above, the absolute heart dulness is the relative dulness obtained over the lung; this is inseparable from relative heart dulness. On auscultation the heart sounds are moderately strong and clear. The second pulmonic is reduplicated and accentuated.

Abdomen is on a level with the ribs. It looks natural. The walls are quite resistant, making palpation difficult. Spleen and liver are not felt. Percussion is negative. Leucocyte count 9,256 on July 27, 1904. Urine examination is negative.

Sputum was examined July 31. The color was whitish-gray; it had a foul odor, like that of "bad" eggs. It separated into three layers. No tubercle bacilli were found; no elastic tissue. Later a hair was found; compared to a hair from the patient's head, this was distinctly lighter in color and seemed somewhat finer.

Fluoroscopic examination of thorax. There is a light shadow throughout the left side above. Below the level of about the eighth dorsal spine to the eleventh dorsal on the left there is a dark shadow extending straight across. A skiagraph was taken; unfortunately the negative was poor.

The patient failed to react to the maximum diagnostic dose (10 mg.) of tuberculin (Koch), a fact which was omitted from my first report through an oversight.

The diagnosis in this case rested largely on the history of expectorating hairs, together with the evidence of an abnormal condition in the left side of the thorax, all the objective signs of which might readily be explained by a mediastinal tumor occupying chiefly the left side and separated from the thoracic wall by a moderately thin layer of lung tissue.

After a short stay in the medical ward, the patient was referred to the surgical clinic where operative treatment was advised. Certain reasons made this impossible at the time, but the patient signified his intention of returning later for surgical intervention. Very recently (January, 1905), I have learned that the patient, while on a visit to Chicago, sought the advice of Dr. Nicholas Senn, in whose care he placed himself. Additional information will doubtless be given by the report which it is to be hoped and expected the operator will make.

The following cases are given, as nearly as possible, in chronological order and are in large part selected quotations taken from the sources indicated. They are given in some detail, but this has seemed unavoidable both for the purpose of analysis and because dermoid cysts of the mediastinum, like other diseases, do not follow a definite course and produce certain fixed symptoms, so that one description will suffice for all cases.

1. *Gordon.* A Case of Tumor in the Anterior Mediastinum Containing Bone and Teeth. Medico-Chirurgical Transactions, Vol. XIII, p. 12, 1825.

M. C., female, aged twenty-one years, strongly built, was admitted to the Islington Dispensary June 17, 1822 with the usual symptoms of pneumonia. An irritating cough remained; pulse 120. Pain in the side occasionally recurred; cough was convulsive and suffocating and was attended with an expectoration which was at first mucous and afterwards purulent. Previous health had been good. No emaciation. About two months after admission a small round tumor was found below sternal end of left clavicle.

about the size of a nut and pulsating regularly and strongly. The tumor rapidly increased in the course of three weeks and rose above the clavicle, and then somewhat receded. Patient was always dyspneic. The attempt to lie down always excited cough. The tumor now remained stationary for some time and there was some improvement in her health. In the spring of 1823 the tumor gradually extended over the trachea, occasioning great irritation and threatening suffocation. On June 25, 1823, it pointed and burst, serous fluid escaping. Examination with probe proved this to be a small superficial sac. After August first no discharge took place and by September twelfth there was no trace of the tumor. The patient left the hospital and went to work. On October twelfth she was readmitted with symptoms of general fever and oppressed breathing but without any local complaint. Death on October twentieth.

Autopsy.—Tumor in anterior mediastinum, closely attached to upper two-thirds of sternum and sternal end of right clavicle. Fluid in left pleura where not adherent. Right innominate enveloped by thickened cellular tissue, which connected the tumor with the surrounding parts. Contents of the tumor were: serous fluid, sebaceous matter mixed with hair, and an apparently fatty mass at the bottom, which, being cut open, proved bony. On more careful examination, a bone was detected very nearly resembling the upper maxillary, a portion of alveolar process which might seem to belong to the upper or lower maxillary, and seven teeth.

2. *Münz.* (1839). Alber's Pathologische Anatomie, Erläuterungen, Abtheilung III, p. 342. Bonn, 1833-1846.

M. V., female, aged twenty-eight years, had been somewhat delicate during youth. Body is, however, well developed. During her earlier years she often suffered with catarrhal affections, and in her fifteenth and sixteenth years she noticed that she frequently expectorated hairs with mucus after severe coughing. From her twentieth year the catarrhal affections which increased, especially in the winters, in severity and duration, became phthisical. In 1838 she entered the hospital; on continued coughing she raised a foul-smelling puriform mucus, which frequently contained hairs singly or matted together. After several weeks foul, purulent sputum, dropsical phenomena and hectic fever increased, the expectoration of hairs decreased. Colliquative diarrhea set in and the patient, exhausted and dyspneic, died March 13, 1839.

Autopsy.—Lower lobe of right lung in some parts was solidified, in others there were softened tuberculous masses. Left lung about the cavity (see below), had a tuberculous appearance, but there was no vomica. In the left lung there was found on its inner surface a mass consisting of two communicating cysts; the upper one being the smaller and communicating with the left bronchus. The cyst wall resembled both skin and mucous membrane. On the inner surface hairs were found attached. These were of light brownish to reddish color, and somewhat lighter than the hairs of the head. Cyst was filled with a fatty, puriform fluid containing many hairs (Ekehorn).

3. *Büchner.* Ein seltener Sectionsbefund. *Deutsche Klinik,* Bd. V, p. 311, 1853.

C. Z., female, aged thirty-six years, entered the clinic (Tübingen) on June 3, 1853. According to the statement of a relative, she had complained of pain in the chest, cough, and dyspnea for nine months; she had an attack of pneumonia in February, 1853, which left her with increased cough and whitish expectoration. Five weeks before admission a pneumorrhagia set in suddenly, when about three-quarters of a pint of dark blood was raised; since this time the patient has continually coughed up blood.

Status præsens.—About six to eight ounces of bloody sputum are raised in twenty-four hours. Frequent vomiting of material mixed with blood; frequent chills; pulse soft, 120. Examination of the chest gave the following: The right side of the thorax from the second to the fourth rib bulges slightly and the entire right side expands less than the left. There is a very weak elevation and sinking of the prominence on the right, synchronous with the heart impulse; this is more evident on palpation. Percussion (see Figure 2) gives complete dulness on the right side of the thorax anteriorly, beginning at the lower border of the second rib and extending down to the diaphragm. Toward the left the dulness has a sharp border along the middle line of the sternum; to the right, on the contrary, it passes over into the resonant note behind only gradually. Right back and entire left lung give good resonance. Between the first and second ribs on the right the note is full and has a tympanitic quality. Auscultation gives bronchial breathing and resonant râles over the entire right side of the thorax anteriorly. In several places, as in the region of the right nipple, a blowing, systolic murmur can be made out. Right back and entire left lung give increased vesicular. Heart is free. Eight days after admission the patient died. Two or three days before death bronchial breathing and dulness were found over the right lower lobe, with simultaneous increase of fever and cessation of bloody sputum.

Autopsy.—Left lung negative. Right lung, on removal of sternum, not visible; in its place is a whitish-yellow mass which reaches from the second rib downwards to the diaphragm, on the left beyond the median line. Pericardium adherent to the mass on the right. The tumor, the size of a child's head, is cystic and adherent to the anterior chest wall. In it are found bone, cartilage, hair, etc. The cyst is roughly divided into two parts; the wall of the larger is covered with blood clots and communicates directly with the ascending portion of the aorta just above the semilunar valves, while the

lower sac has perforated into the lower lobe of the lung, the opening being about the size of the little finger. Pneumorrhagia resulted from the communication between lung and cyst. No cholesterin crystals could be found.

4. *Lebert.* Beobachtungen und klinische Bemerkungen über Dermoidcysten. *Viertel-jahrschrift für die praktische Heilkunde,* Bd. LX, p. 25, 1858.

H. R. v. T., male, aged sixty years, hat-maker, was admitted to the Zürich Hospital December 17, 1853. The patient had been dyspneic upon exertion or climbing since his sixteenth year. Coughed from time to time. In the last few years he has had constant dyspnea and frequent cough, especially in winter. No assignable cause. Early in the autumn, dyspnea became worse; in December he caught a severe cold, after which he had chills, fever, frequent cough, expectoration, and considerable dyspnea. Several days after each exacerbation copious, blood-tinged expectoration. On admission the patient was not emaciated; the lips and cheeks are cyanotic. Thorax is broad, intercostal spaces are full, also the supraclavicular fossæ, particularly the left. Percussion of anterior thorax gives hyperresonance; no heart dulness. Breathing in front and behind weak. In front at various points piping râles; behind, at both sides below, mucous râles. Cough is frequent and painful. The sputa are in part tenacious, in part globular, without blood. Neck veins swollen. Lower extremities slightly swollen. Orthopneic at night. On January 5, 1854, the dyspnea suddenly became very urgent, the patient collapsed and died in the evening.

Autopsy.—Both lungs markedly emphysematous. Between the two lungs and above the heart a large nodular tumor was found, which was loosely adherent to the pericardium; the mass was 7 cm. long and broad and 4.5 cm. thick. On opening the tumor a pale yellow pulp escaped. The tumor consisted of a large cavity with smaller communicating cysts. On the inner surface of the cyst there were polypoid excrescences which consisted of cartilage. In some places the surface was covered with pavement epithelium, in others with cylindrical epithelium. Hairs were not present. The liver was pressed downward; it was not enlarged.

5. *Cordes.* Dermocystoid im Mediastinum anticum. *Virchow's Archiv,* Bd. XVI, p. 290, 1850.

J. J., aged twenty-eight years, fusilier, was in the maneuvers in the summer of 1858. He had always been well, except for asthma at times. On August 25, 1859, he was taken ill suddenly with severe headache, fever, intense pain in the region of the stomach, great collapse with a small, intermittent pulse, and dyspnea. Examination revealed the following: Nutrition moderately good. The patient complains of dyspnea, and pain in the stomach region and under the sternum. Temperature normal; pulse frequent, unequal. Respirations 48, shallow. Frequent and copious vomiting. Heart dulness three square inches, rather quadrangular, extends under the sternum and begins on the third rib. Apex beat not felt. Heart sounds weak and clear. Condition was diagnosed acute catarrh of the stomach and pericarditis with effusion. In a few days the symptoms became less severe.

On September 5, patient complained of cough; raised small masses of glairy, tenacious, clear sputum. Percussion and auscultation of lungs negative. Pericardial effusion increased gradually in next few days with dyspnea and increasing edema of feet. Until death, on October 16, the symptoms mentioned gradually increased. Cough became more severe, while the respirations became fewer (to 19). The sputum was deeply stained with fresh blood, very tenacious, slightly foamy, in amount about two ounces in twenty-four hours.

Autopsy.—Pericardium greatly distended with compression of lungs. It contained a sea-green, moderately clear fluid, on which a considerable quantity of yellow flakes floated; the latter were fatty and were shown to be identical with the contents of the tumor described below. In the anterior mediastinum a tumor the size of a man's fist was found, lying upon the aorta ascendens, arch of aorta, and part of the aorta descendens, and upon the bifurcation of the trachea. Below it reached to the base of the pericardium, on the left to the middle of the left lung, on the right to the pericardium. It was surrounded by a sac which was generally adherent to the pericardium and the cellular tissue surrounding the great vessels and the trachea. The sac contained a sulphur-yellow, fatty material, which consisted of hairs and, on microscopic examination, of dark gray, strongly refractile masses, pavement epithelium, and round cartilage cells. Small hairs were found attached to the inner wall of the cyst. From the upper left side of the sac there extended a projection about 2½ inches long and three-fourths inch broad, having contents similar to the main cyst; this communicated with the pericardium. No pericardial fluid was found in the tumor. The cyst measured 10 cm. long and 5 cm. broad. Sebaceous glands, hair follicles, and bone were found in the wall.

6. *Cloëtta.* Ueber das Vorkommen einer Dermoidcyste in der Lunge. *Virchow's Archiv,* Bd. XX, p. 42, 1861.

The patient was a woman, aged twenty years, who had the usual symptoms of chronic tuberculosis on the left side during the latter part of her life. The chief point, which was noticed by the patient, was the expectoration of a large amount of sputum which frequently contained hairs in large quantity. This was looked upon by the attending physician as a deception.

Autopsy.—On cutting through the lower lobe of the left lung, a sac was found filled with hair, epithelial cells, and fatty material. To this sac there were two communicating compartments.

The smaller cavity comprised the real dermoid tumor; the larger one was a lung vomica. The dermoid cyst was situated on the inner surface of the lower lobe of the left lung, was as large as a small sized apple; its walls, which were very thick, consisted of a hard tissue in which cartilage and pieces of bone were embedded, but no teeth. The inner surface was uneven, with projections; on it there were many long and short hairs. The cyst extended for about one-third of the way through the lung. On the posterior wall of this cavity a large bronchus opened.

7. *Salomonsen.* Eine Dermoidcyste in der Lunge. (Bibliothek for Läger, July, 1863). *Schmidt's Jahrbücher der gesammten Medicin,* Bd. CXXIV, p. 292, 1864.

Servant girl, aged twenty-four years, entered the hospital December 7, 1861. She had been well as a child. In 1851 she had scarlet fever, and since then she has complained of cough with pain in the chest and back. In 1860 the patient had measles, followed by inflammation of the lungs. Cough has become worse, and for the last two weeks the patient has had severe pains in the chest. On admission the patient had some fever, and the attacks of coughing were frequent and severe, lasting often several minutes and exciting sharp pains in the chest, especially in the right side. Sputum not foul smelling. Dull note on percussion of upper part of right lung; vesicular here weak, with prolonged expiration accompanied by dry râles. Amphoric breathing, increased voice and coughing sounds, and numerous moist, somewhat ringing râles below the inner end of the right clavicle and behind in the supraspinatous fossa. Examination otherwise negative. The disease progressed rapidly, the patient emaciated, expectoration increased, speech was difficult, and on January 4 she complained of more severe pains in the chest, spit up about one-half pint of dark fluid blood (not foamy), and died about half an hour later.

Autopsy.—Right lung adherent throughout. From right apex thick pus escaped. Right lung was crepitant only in lower part; no bronchiectasis found. In a small bronchus extending toward the hilus of the lung there was a communication with a cyst about the size of a pigeon's egg which adhered to the pericardium and pleura. The inner surface of the latter resembled skin and was filled with a thick pulp of a brownish red color with yellow spots or points and with small brownish hairs. In the apex a tuberculous cavity of about the same size was found. The entire appearance of the lung resembled that of infiltrated and softened tubercle. Microscopical examination showed the inner surface of the cyst to consist of pavement epithelium with sebaceous glands and hair follicles. Cartilage was found in the wall.

8. *Collenberg.* Zur Entwickelung der Dermoidkystome. Inaug.-Dissert., Breslau, 1869. Also reported by *Waldeyer.* Dermoidystom des vorderen Mediastinalraumes. *Archiv für klinische Chirurgie,* Bd. XII, p. 843, 1871.

A. M., male, aged fifty years (44-Waldeyer), entered the hospital December 28, 1867, with the signs of pleuropneumonia of the right lower lobe. Patient was very cyanotic and extremely dyspneic. Temperature was high, pulse small, weak, irregular, and intermittent. Weakness was marked. Patient died ten hours after admission with signs of edema of the lungs, making it impossible to obtain the history.

Autopsy.—(Waldeyer).—Large, muscular cadaver. On removing the sternum a fluctuating tumor somewhat larger than a child's head presents in the lower right half of the thorax; its walls feel calcified in places and are loosely adherent to the anterior thoracic wall. The tumor extends downward from the sixth rib, pressing on the diaphragm. The heart apex in sixth interspace almost in the anterior axillary line. Right lung is pushed backward by the tumor. The tumor is surrounded by the pleura and is connected with the right lobe of the thyroid gland by a narrow band. The mass is cystic. Contents of cyst are partly solid, partly fluid; the latter is a simple fat emulsion containing solid particles formed of pavement epithelial cells and cell fragments. Single reddish hairs are also found. Microscopically the wall contains connective tissue and stratified pavement epithelium with sebaceous glands.

9. *Nobiling.* Kurze Mittheilungen aus den pathologisch-anatomischen Demonstrationen des Prof. Dr. Buhl. *Aerztliches Intelligenz-Blatt,* Bd., XVI, p. 3, 1869.

A preparation of a dermoid cyst in the lung was demonstrated. The condition was diagnosed during life because of the fact that the patient, a man, had coughed up hairs.

10. *Villard.* 1869. (Cited by Dardignac). The patient was a woman, aged fifty-five years. She entered the St. Antoine Hospital October 9, 1869, and a few days later died.

Autopsy revealed a tumor the size of a large walnut between the layers of the pleura on the right. It rested on the diaphragm, and was adherent to the thoracic wall and the base of the right lung. The tumor proved to be a cyst. The wall was calcified, no trace of glands in it. Its inner surface was covered with layers of cornified epithelium. In the cyst was a substance soft and friable, formed of fat and cholesterine crystals, numerous fat droplets, some red blood cells, and a substance resembling altered pavement epithelium. No hairs were found.

11. *Pöhn.* Dermoidcyste des Mediastinum anticum. Inaug.-Dissert., Berlin, 1871.

B., male, aged thirty-four years; was always healthy till the summer of 1866, when he suffered from severe cutting pains in the right shoulder and upper arm. They gradually decreased in intensity, but returned in the summer of 1867 with renewed force, together with pa-

retic symptoms in the affected parts. Patient was well during the next two years, when the pains reappeared and there was sensitiveness to pressure over the right sterno-clavicular articulation. Soon a pulsating tumor developed at this point. In the following years it grew very slowly but constantly, and the pains in the right arm continued without signs of paralysis. The general condition of the patient was good and no change in his daily life was necessitated. In 1870 pain was noted in the region of the left sterno-clavicular articulation, with weakness and impaired sensation in the left arm. A pulsating tumor developed here also. The tumor on the left side began to grow rapidly, especially downwards, in March, 1871. Severe neuralgic pains and paretic symptoms then appeared in the left arm. There were no signs of compression. The patient remained in this condition till the middle of July, when he was admitted to von Langenbeck's clinic in Berlin. Examination July 14, 1871. Strong frame; healthy looking man. There are two tumors in the neck (as above); their surface is smooth and the skin is freely movable over the right; somewhat thin, reddened, and adherent on the left. Thorax is symmetrical; expansion equal on the two sides. Heart apex is in the sixth interspace just outside the nipple line. In both tumors there is a pulsation synchronous with the radical pulse. Fluctuation waves pass from one tumor to the other. Heart dulness is found between the left parasternal and nipple lines; sounds normal. Percussion and auscultation of the lungs are normal. Auscultation over tumors negative. The tumors were diagnosed as cystic. July 14 a trocar was inserted and a few drops of pus escaped; the tumor was then freely incised, and there was evacuated first pus, then a tenacious, yellow, fatty mass containing many long and short curly hairs. Under the microscope the contents were seen to consist of fat, both amorphous and in droplets, a few chloresterin crystals, and bits of epidermis (after treating with alkali). The ultimate result of the treatment is not given.

(To be Continued.)

MEDICAL PROGRESS.

MEDICINE.

Immunity.—The seventeenth chapter of the special article on Immunity (*Journal A. M. A.*, June 17) commences with a statement of the nutritional aspects of Ehrlich's side-chain theory as developed by him in his earlier work on the oxygen requirements of the body and before its application to the explanation of the phenomenon of immunity. It assumes that all substances that enter into the structure of protoplasm (food substances) are bound in the cells and the union must be considered a chemical one. Such a chemical union demands the presence of two binding groups of maximal chemical affinity which are suited to each other. He called these binding groups residing in the cells side-chains or receptors, those in the food molecules, haptophrorous groups. He also assumed that protoplasm is endowed with a large number of such side-chains, chemically adapted to the various foodstuffs, thus providing for nutrition. To adapt this theory, however, to the explanation of immunity it is necessary that it be elaborated in order to account for the formation of antibodies. Why these are not formed for nutritive substances is explained by assuming it to be probable that, in the normal condition, a physiologic equilibrium exists between the food substances on the one hand and the cellular activities on the other, so that the union of food and protoplasm forms no abnormal stimulus to those of the cell. When, however, union with a toxin occurs, the result is described as a cell defect, consisting in the functional elimination of the receptor. To repair the defect, the vital center of the cell (*Leistungskern*) sends out new receptors, and not only enough, but, in harmony with Weigert's hypothesis, a great excess, so that many are thrown out into the circulation. The proofs of the three tenets that form the framwork of Ehrlich's theory are next taken up in detail. The first of these, that antitoxins counteract toxins by entering into chemical union with them, is deemed to be well supported by experiments *in vitro*, such as those made with ricin and antiricin, the neutralization experiments with diphtheria and tetanus toxins and their respective antitoxins, etc. Admitting that these neutralizations are of a chemical nature, the first essential step in the establishment of the chemical or side-chain theory is assured. It is not so easy to demonstrate this as regards the union of agglutinin and amboceptors with the cells, but here also the proof is considered strong. The second tenet: that toxins in injuring cells combine chemically with a definite constituent of the protoplasm, the cell receptor, is held to be strongly supported by Wassermann's famous experiment of neutralizing tetanus toxin by grinding it up with the central nervous system of guinea-pigs. The chapter concludes with a reference to the analogous results obtained by von Dungern with precipitins, showing that albuminous substances, other than toxins, are taken up chemically by the cells.

Pernicious Effects of Alternating Current of High Voltage.—F H. Millener (*Buffalo Med. Jour.*, June, 1905) presents a paper on one phase of the great subject of electricity and its relation to mankind, having reference specially to its pathological effect upon the health and lives of men engaged directly in the manufacture, transforming or transmission of this mysterious fluid. From an observation of eighteen cases of men who were affected by the electricity, the author concludes that continuous employment in the immediate presence of electrical generators or transformers, where one is continuously in an atmosphere heavily charged with electricity, or ozone, or some light or ray as yet undiscovered, results in such disturbed conditions of the digestive fluids or of the secretions of the stomach and its cognate glands and organs, as to greatly impair the digestive function; and that persons so employed lose their appetite, and become of an almost chalky complexion, and experience pain and distress after partaking food, and often have to obtain short periods of vacation in order to recover their ability to eat and digest their foods in a normal manner.

Vicarious Action of the Bowels for the Kidneys in Tuberculosis.—Lawrence F. Flick and Joseph Walsh (*Am. Med.*, July 22, 1905) call attention to the fact that it has long been recognized that in certain cases of tuberculosis there is a looseness of the bowels not due to ulceration. This looseness has been termed irritative diarrhea and has been ascribed to errors in diet. A careful study of the number of cases which have been

under observation a long time clinically and which have come to autopsy lead us to believe that in these cases the looseness of the bowels is due to the vicarious action of the bowels for the kidneys and that nature is really trying to protect the system by this vicarious action. Eleven cases are reported. In all of them there was severe diarrhea usually over a protracted time. In all the intestines were practically normal and the kidneys showed acute alterations. The cases were studied clinically from four weeks to three years; diarrhea lasted from four weeks to eight months. In three cases out of the eleven the autopsy showed the ileum slightly congested; in all the remaining cases the intestinal tract, with the exception of the appendix, was normal. Several forms of nephritis were found, toxic nephritis, parenchymatous nephritis, diffuse nephritis and intestitial nephritis. In seven cases out of the eleven there were scattered tubercles in the kidneys. The diarrhea was considered to be a vicarious action for the kidneys because no other definite cause was found. The rest of the paper deals with nephritis in tuberculosis, its frequency, its etiology, its symptomatology and its treatment. It is caused by the growth of tubercle bacilli in the tissue of the kidneys and by the toxins secreted through the kidneys from other lesions elsewhere. It also may be caused, perhaps, by the dead tubercle bacilli in the process of elimination. The treatment is magnesium sulphate and nitroglycerin.

OBSTETRICS AND GYNECOLOGY.

Sarcoma of the Uterus.—This type of cancerous growth of the uterus is rare. It may occur in the cervical portion, in the mucous membrane, and in the parenchyma of the organ. A fourth extremely malignant type may occur, the deciduoma malignum, which is always associated with pregnancy. Sarcomata of the cervix usually takes on a mulberry appearance, the sarcoma botryoides. They occur, as a rule, in young women, but may appear after the menopause. This type develops from the most superficial layer of the mucous membrane, and is extremely malignant. In sarcoma of the mucous membrane of the uterus, polypoid growths may form, only to be differentiated from the benign mucous membrane hypertrophy by the microscope. The so-called fibrosarcomata, springing from the parenchyma, usually grow slowly, and often attain large dimensions before giving rise to serious symptoms. H. Grad (*Am. Jour. Obstet.*, May, 1905), questions whether these tumors are sarcomatous from the inception of their growth, and suggests that they may be secondary metamorphosed fibromyomata. The researches of Backer, Graves and Beyea are cited to lend evidence in support of the assertion that sarcomatous degeneration of uterine myomata is not extremely uncommon. A case is reported by the writer, of extensive sarcomatous involvement of the uterus and upper vagina, which was changed from a hopelessly inoperable to an operable condition by six weeks' treatment with X-rays. For ten months after operation the patient was free from all adverse symptoms. Subsequently a recurrence appeared in the rectum, the patient became discouraged over the slow therapy of the ray treatment, and obtained the services of a Christian Science "healer." This last treatment was continued several months, a physician being called in time to sign the death certificate.

Cæsarean Section for Placenta Prævia.—R. W. Holmes (*Journal A. M. A.*, May 20), as the result of an extensive statistical study of the comparative mortality of Cæsarean section and of placenta prævia treated obstetrically, decides that Cæsarean section for placenta prævia lowers the fetal mortality 30 per cent., but increases the maternal death-rate nearly threefold. Approximately, the mother is sacrificed for the uncertain chance of life of the child. He questions the statistics somewhat, holding that some maternal mortality is unrepresented. A rigid os is one of the rarest complications of placenta prævia; most cases so diagnosed are, he holds, wrongly so considered. A true cicatrical cervix or rigid cervices of old primiparæ may afford an indication for Cæsarean section in placenta prævia. Pelvic contractions are indications for Cæsarean section in the presence of prævial hemorrhage, the deformity, not the prævia, being the determining indication. The earlier the interruption of gestation, other things being equal, the more may the pelvic deformity be disregarded. Usually the condition is not recognized until hemorrhages appear. Cæsarean section for placenta prævia will never have so low a maternal mortality as when done for a pelvic indication. Repeated examinations for diagnostic purposes must be made, and the temporary use of a vaginal tampon may be required until the patient can be transported to a hospital or due preparations be made for operation. The acute anemia and the anatomic conditions postpartum add special danger to the operation. Suitable cases for Cæsarean section usually call for operation independent of the fetal condition, as the primary object is to save the life of the mother. It should only be a last resort, and if an abdominal operation is forced on the obstetrician he should remove the uterus as a prophylatic against hemorrhage and infection. The profession should await the adjudication of the field for Cæsarean section in placenta prævia by obstetric authorities before resorting to it.

The Pathology and Treatment of Puerperal Eclampsia in the Light of Recent Work.—A. W. Sikes (*Practitioner*, May, 1905) considers that, apart from the well-known pathological findings in this condition, it is produced by the non-elimination of the normal metabolic products of the fetus, this non-elimination being accounted for by renal inadequacy due to extra strain on the kidneys hampered by pressure on the ureters, and by the alteration in the pressure in the renal blood system. When once these metabolic products cannot leave the system, the liver is soon deranged, and deficient oxidation here makes the condition worse. The mother's own metabolic changes are interfered with, and insufficiently oxidized proteid substances, circulating in the blood, act on all the tissues, blood vessels, etc., causing an increase of fibrim in the blood and thromboses in the vessels of both mother and child. All the work on eclampsia shows that the difficulty of elimination is the paramount cause, and anything which interferes with elimination—old disease of heart or kidneys, narrow pelvis or protracted teeth—all favor the onset of the disease. The author, in considering the prognosis in this class of cases, thinks that from the clinical aspect, the smaller the amount of albumin the more normal the pulse in rhythm and tension, the nearer the onset of the fits to the end of pregnancy, the shorter time the fit lasts, and the greater the time between the fits so much better will the prognosis be. The prophylatic treatment consists in rest, purgation by saline aperients, milk diet and very small quantities of meat. The patient should drink as much fluid as possible. Exposure to draughts, cold and damp should be carefully avoided. When the fits have started the author recommends

saline aperients, narcotics, chloroform, and carefully considers the use of diapharesis enteroclysis, hypodermoclysis and bleeding, and is in favor of the active line of treatment.

Tuberculosis of the Fallopian Tube.—The source of tuberculous infection of the tube cannot always be demonstrated. The infection may be carried through the blood or lymph stream or spread directly from the peritoneum. A. W. W. Lea (*Jour. Obstet. and Gyn. of Brit. Emp.*, April, 1905, states that the disease usually commences by the appearance of miliary tubercles in the mucous membrane of the tube. The process in most cases extends as a diffuse miliary tuberculosis, in which the mucous membrane is greatly thickened, area of caseation appear, the abdominal ostium is occluded and perisalpingitic adhesions are formed. As a result of closure of the ostium a tuberculous pyosalpinx may form. The process may take the form of a diffuse fibroid tuberculosis, characterized by a formation of considerable fibrous tissue in the walls of the tube. In some cases the tube may show merely catarrhal changes, and the tuberculous character only demonstrated by inoculation into guinea pigs. The ovary escapes infection in the majority of cases. Contrary to the findings of most observers the writer did not find the uterus involved in a series of eight cases. An absolute diagnosis is not always possible, the previous history of the patient, menstrual changes, pain and leucorrhea are important. No rise of temperature is to be expected when the disease is limited to the tube. Bimanuel examination is not especially suggestive unless tuberculous peritonitis is associated with tubo-ovarian swellings. The prognosis is reasonably good if the tubes are removed before general tuberculous infection has occurred. Without operation the disease steadily progresses to a fatal termination.

THERAPEUTICS.

The Therapeutic Value of Ergot in Labor.—J. C. Applegate (*Am. Med.*, June 24, 1905) does not regard ergot as an appropriate or safe remedy at any period during labor until the presentation or expulsion of the placenta, notwithstanding the statement in many text-books that it is valuable for uterine inertia. Its physiologic effects on the uterus are unlike the rhythmic labor contractions, in that they are less intermitting, more continuous and predispose to constriction, particularly of the lower segment. Paralysis of the fetal heart from compression, retention of the placenta and membranes and rupture of the uterus are the attending dangers. Complications of the third stage of labor or postpartum hemorrhage rarely follow the expression of the placenta after the Credé method. He regards ergot as a safeguard and valuable at the end of the third stage of delayed labor or when uterine inertia has been a factor, also after placenta prævia and reposition of an inverted uterus. With a uterus normally contracted, the author considers it valueless and rather detrimental when used for the prevention of septic infection, since its tendency is to disturb the venous thrombi and lock too completely within the uterus excreta that would otherwise be liberated. Ergot may be administered by the mouth as a safeguard, but for the control of hemorrhage better results are obtained by hypodermic administration.

Poisoning by Wood Alcohol.—C. Koller (*Med. Rec.*, July 1, 1905) describes the case of a man of forty-two who presented himself at the clinic for nervous diseases of the Mount Sinai Dispensary, suffering from acute, total blindness. Investigation of the history showed that the loss of sight had come on during the second night after taking about two ounces of whisky, a quantity which subsequent analysis showed contained about 20 c.c. of wood alcohol. The visual disturbance rapidly progressed, until about thirty-six hours later he was completely blind. Other symptoms which had accompanied the development of the eye condition were nausea, vomiting, weakness, chilly feelings and cold extremities. On ophthalmoscopic examination the optic nerves presented the picture of a neuroretinitis of moderate intensity and in the macular regions were disposed numerous yellowish, bright, shining spots similar to the picture described as choroiditis guttata. Potassium iodide, hot baths and good nourishment were prescribed, and six months later the right eye showed complete recovery of function, except a moderate diminution of visual acuity, and the left eye presented marked though moderate concentric contraction of the field, considerable diminution of central vision and absence of perception for green. The author reviews the subject of wood alcohol poisoning in general, and its ocular manifestations, among which complete bilateral blindness, dilated pupils with lost reaction, and, ultimately, atrophy of the optic nerve and retina are prominent. Sweating by hot bath or pilocarpine, potassium iodide internally, and sufficient diuresis, perhaps by milk diet, are rational and sometimes successful measures of treatment. The matter of prophylaxis is of the greatest importance, and the public must be enlightened as to the poisonous nature of the substance.

Potassium Chlorate Poisoning.—Lester W. Day (*Journal A. M. A.*, July 22, 1905) reports an interesting case of poisoning from potassium chlorate. The patient, a man aged thirty years, purchased at a drug store a bottle containing fifty 5-grain tablets of potassium chlorate. Though the printed directions were to dissolve one tablet in the mouth, every hour or so, the patient used the entire fifty between March 10 and April 1. On April 2 the patient complained of itching, and on April 6 the thighs, legs, ankles, trunk, forearms and wrists were seen covered with innumerable reddish macules: there were also numerous petechiæ. There was no nausea, diarrhea or headache. The patient made a slow but unventful recovery.

PRESCRIPTION HINTS.

Alimentary Urticaria.—The following prescriptions are recommended by Dauchez (*Gaz. des Hopitaux*, August 3, 1905) in the treatment of urticaria of alimentary origin in a child of four years. For two or three days give

℞ Magnesia (English)
Sulphur (sublime and washed)
Cream of Tartar
White honey } aa 5 gr.

M. et S. One or two teaspoonfuls daily.

(2) Keep child on a mild diet. On increasing the diet, prohibit fish and fruits. (3) Give prolonged warm, mucilaginous baths. (4) Use following liniment:

℞ Chloroform pur. .2 to 4 gr.
Tinct. Aconiti .6 gr.
Ilei Amyg. Dulcis .90 gr.

M. et S. For external use.

(5) If there is much irritation at night, one may use warm lotions of a decoction of tobacco, to be followed by the application of the following powder:

℞ Tale (pulv.)
Zinci oxidi
Starch flour, chem. proc. } aa ʒss

M. et S. For external use.

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YELLOW FEVER AND THE MARINE HOSPITAL SERVICE.

The accent on the yellow fever situation, which has long been grave, has now become acute, and two things are painfully apparent to even the casual observer of the condition of affairs at New Orleans. Of these the first, and perhaps the most important, is that the epidemic is not under the control that the laity expected or the medical profession hoped for, when it was placed under the care and supervision of the Marine Hospital Service. And, second, that there is little likelihood of the fever being "stamped out," or "eradicated" until the coming of the frost, when it will die a natural death.

Unfortunately, however, this period is somewhat remote, and it strikes us that it has now come to a point in the affairs of the Marine Hospital Service when they should not only do—as they have already done—all that modern science and special skill can accomplish, but that they should give the *highest* evidence in their power to the people of the country at large that they were so doing.

As to who is responsible for the introduction and spread of the disease it is too late to argue, but in justice to the medical officers in charge of the earlier cases it is only right and fair to call attention to the fact that they were hampered from the start by the perhaps natural desire of the friends and relatives of the victims to conceal the presence of fever in their homes. Also that the mercenary and commercial unwillingness of the city authorities to interfere with their business prosperity by the installment of a strict quarantine, gave the time necessary to permit the epidemic to become general and so firmly rooted that it has proved impossible to drive it out.

For if the first group of cases had been taken in time, had been isolated in mosquito netting and properly treated, the patients, it is true, might have died, but the disease itself would not have spread or have become so general as it now undoubtedly has, for it requires about a period of thirteen days for the fever-bearing mosquito to become inoculated, and during that time much could have been done to have checked the invasion of a general epidemic and to have kept it within the affected territory. But this was neglected, and when the sanitary control of the city was passed over to the government of the United States, and by it to the Marine Hospital Service, the disease had become so widely spread, so impossible of control, that the officers in charge not only recognized the fact, but, to their great credit and wisdom, were frank enough to state it openly and without reserve.

No one who has watched the rise of this service, from its small beginning to its present deserved standing in the medical world, can fail to appreciate what its services have been to this country, or refuse to recognize the scientific attainments of the members of its staff. To it the country owes much of its medical advancement in sanitation, and its work alone on the mosquito problem would place it in the front rank of similar organizations in other countries. So that having achieved so much that has been brilliantly successful, it is a pity that it should lose either prestige or honor on account of a situation that was thrust on it and for which it is in no way responsible.

That Dr. J. H. White, who is in charge at New Orleans, is doing all that can be done; that he is using every modern application and new method that has been devised, we do not question. That the presence of any one else could aid him, either with assistance or advice, we doubt. He has had great previous experience and he is by nature a man who is fitted to be at the head of affairs in such a crisis as the

present one, but he has not the rank of the head of the Bureau, and for the *morale* of the country, and particularly for the sake of the Marine Hospital Service itself, it seems to us that the time has come when the presence of the commanding officer is imperatively needed at the seat of activity.

When a nation is on the eve of a decisive battle the commanding general should be at the head of his men himself. He may be able to direct the strategy of his army as well from his headquarters as he could in the field, but what is needed is the personal presence of the commander, the individual influence that will strengthen and encourage the men. All this, too, is more necessary when the odds are against success and the situation, as in the present case, is desperate. Then in case of failure the country at large would recognize that no stone had been left unturned; and that the strength and power of the government had been expended without stint and without reserve.

That the President of the United States has not ordered Surgeon General Wyman to Louisiana, in accordance with his own desires, is due perhaps to the pressure of other public matters at this time. There is certainly a precedent for such action, for Surgeon General Hamilton, if we remember rightly, was sent to Florida during the noted epidemic there by the President then in power, and as Dr. Wyman himself has built up the Service to its present efficiency, as he has led it to its great advancement and been the author of its prosperity, he most certainly, in its time of need, should be permitted not only to direct and control its affairs, but should be allowed in person to see that the instructions for which he will unquestionably be held responsible, are carried out with promptness and despatch. The laborer is worthy of his hire, and surely the Surgeon General of the Marine Hospital Service is entitled to this modicum of executive courtesy.

PNEUMONIA ONCE MORE.

A very striking set of statistics with regard to pneumonia is to be found in an article on Croupous Pneumonia in the June number of the *American Journal of the Medical Sciences*, which shows a general mortality in the Philadelphia hospitals for a period of about six years, embracing nearly one thousand cases, of over 50 per cent. Five hundred and thirty-three deaths took place in nine hundred and ninety-one cases. The writers confess that this is, of course, an extraordinary high death-rate, and can only be accounted for by the class of patients from which the statistics are derived. Most of the patients were in extremely unfavorable conditions. Considerably over three hundred were more than fifty years of age, and nearly one hundred were above seventy years of age, eleven of them being over eighty. The younger patients were most of them sufferers from complications of various kinds, or were run down in general health as the result of various abuses and especially alcoholic excesses.

It is from such statistics that the insistent declaration in recent years, with regard to the increase in the death-rate from pneumonia during the last decade, finds its justification. As explained by the authors, however, there is no true justification for such conclusions in these special statistics. Pneumonia in young and healthy adults is by no means a fatal disease. It has been pointed out that the German army statistics show a mortality of not much above three and one-half per cent. in over forty thousand cases of pneumonia occurring in recent years. A Russian observer, who had the opportunity of treating pneumonia as it occurred among young Russian soldiers, had a mortality of only two per cent. when he employed large doses of digitalis. As a matter of fact, however, even two per cent. in the selected young lives that were under his care is more than might be expected under ordinary circumstances, and the digitalis had little, if anything, to do with lowering the death-rate. In spite of this consideration, however, for a time large doses of digitalis were used very generally by medical clinicians in various parts of Europe, and even by a certain number in this country. It is very likely that the remedy did more harm than good, since the overstimulation of the heart during the advancing stage of the pneumonia was an unfavorable preparation for the period of stress which it had to undergo at the acme of the disease.

Of course, the old die of pneumonia. It is rather a fortunate thing that they do, since this forms one of the easiest modes of death for old persons. Dr. Osler said, not long since: "It is the old man's friend, it helps him to escape those cold gradations of decay. It is a painless release from the troubles of life." Owing to the lack of oxidation, there is a lowering of consciousness from the very beginning of the affection, and as

a consequence the pain and discomfort that are present are at most but vague and indefinite. Old persons never have the acute symptoms which characterize the beginning of pneumonia in young, strong adults. A death from pneumonia is at least as merciful, as a rule, for the patient, and it has none of the appalling suddenness for the friends as of death from cerebral hemorrhage.

It used to be said that pneumonia attacked the strong and healthy even more frequently than it did the aged and the weak. This tradition, however, has been completely disproved in recent years, when more careful observations are being made, and when it is recognized more and more that the terminal stage of many affections in old age is really a fatal pneumonia. The fact that this tradition existed, however, is of itself a demonstration that the statistics of pneumonia have changed in recent years. Formerly, only the pulmonary affection which takes off the young and apparently strong was given the name pneumonia. Now it is recognized more frequently, notwithstanding the presence of other complications that used to seem serious enough to account for the patient's condition.

As a matter of fact, it remains true that it is not the pneumonia itself that is a fatal disease, but the complication which it so frequently exacerbates to a serious extent. The old maxim, that it does not make so much difference what sort of a disease the patient has as what sort of a patient has the disease, has its highest application with regard to pneumonia. A distinguished French physician used to say, the prognosis depends not on the pneumonia nor on its extent, but on what the patient takes with him into the pneumonia. It is very generally recognized now that patients suffering from heart disease, and especially an affection of the mitral valves, which is known to be so common, are almost sure not to recover from pneumonia. No matter how young and apparently strong a patient may be, if he goes into pneumonia with nephritis, the outcome will almost inevitably be fatal. On the other hand, the more careful study of tuberculosis in recent years had led to the determination of the prognostic rule, that if patients have previously suffered from active pulmonary tuberculosis, even though their present affection may be apparently a pure croupous pneumonia, the affection will not end by crisis, as in ordinary cases, but will almost surely end by lysis. These are the cases in which there is a subsequent development of tuberculosis, and in which, apparently, the tuberculosis had its beginning in the pneumonia. Another important set of previous symptoms concerns the blood. If patients suffered from anemic or chlorotic conditions in youth, then the pneumonia frequently does not end by frank crisis, but drags on for some time, and may eventually prove fatal, in a sort of typhoid condition.

It seems that in future, if the statistics of the mortality from pneumonia are to have definite value, all of these factors of the previous history of the patient, so far as they can possibly be obtained, must be made to enter into the mortality tables. Needless to say then, the death-rate from uncomplicated pneumonia will not be so great as to produce the unfortunate feeling of hopelessness that now so often prevails in patient's minds when they are told that they have pneumonia and when they remember all the sensational reports which they have recently heard with regard to the excessive mortality from the disease in recent years.

This is an important consideration for the therapeutics of the disease now sadly hampered by the despair of recovery that only too often follows the suspicion in a patient's mind that he has pneumonia.

ECHOES AND NEWS.

NEW YORK.

Warning to East Side Poor.—An East Side physician writes to the New York *Times*, saying that the poor people of the east side should not go for treatment to certain east side dispensaries. "For among the vast army of physicians on the east side there is a certain restless, ever-scheming element which cares little for professional ethics and less for the welfare of the community. These are what we may call commercial doctors. Their scheme is to increase their practice by advertising themselves as professors, specialists, visiting physicians, or surgeons to certain hospitals. As they cannot connect themselves with existing institutions on account of their limited and deficient knowledge of medical science, they create hospitals and dispensaries of their own. Seven or eight such doctors make equal investments of about $50, obtain a charter through some political influence, hire a house, put up two or three big signs with blazing golden letters announcing the professors' hours, and the dispensary is in full blast. Dr. Boaster becomes specialist of stomach diseases; Dr. Upstart takes the nervous specialty; Dr. Skinem, surgery. The understanding between these so-called specialists is to write two or three prescriptions for each patient, in order to extort an additional 20 or 30 cents from the poor sufferer, and Mr. Waterful, the druggist, dispenses the same colored aqua and calomel tablets to each and every patient."

Growing More Nervous.—The yellow headlines have it so for, according to Health Commissioner Darlington, nervous diseases are on the increase in this city. A table has been prepared by the Health Department officials in Chicago and another by those in this city, showing that certain nervous diseases appear to be decreasing.

The following is the table supplied for Manhattan and the Bronx:

Year.	Population.	Death from nervous diseases.	Death rate per 10,000.
1870	943,300	3,275	34.72
1880	1,209,196	2,788	23.06
1890	1,612,550	3,210	19.91
1900	2,181,611	3,091	14.17
1904	2,235,060	4,442	19.88

Ailments classified in the New York Department of Health as "Diseases of the Nervous System and Organs of Sense" are encephalitis, simple meningitis, locomotor ataxia, other diseases of the spinal cord, apoplexy, congestion of the brain, softening of the brain, paralysis, general paresis, other forms of insanity, epilepsy, convulsions, tetanus, chorea, and nervous diseases of the eye and ear. Regarding the results set forth in the table, Dr. Darlington is reported to have said: "As set forth, nervousness is on the increase among the people of this city. Certain diseases may not be so prevalent, and again they may have been wrongly diagnosed years ago. Insanity is certainly on the increase. While the people may be consuming less whisky, which is bad for the brain and heart, they are consuming more malt liquors, which are bad for the liver and kidneys." He is satisfied that nervous diseases certainly are not on the decrease. It should be borne in mind that these are more in the way of impressions than detailed statistical analyses.

Typhoid in New York.—While typhoid continues to increase in Brooklyn, and particularly in the Thirtieth Ward, official reports indicate an abnormal prevalence of the disease in Manhattan borough also. At the same time a growing number of cases was reported from the Bronx. Figures for the second week of August show 92 cases in Manhattan against 38 for the same week last year. There were 41 cases the first week of August this year. Dr. Darlington and his subordinates in the Health Department are preparing to give the same attention to the disease in this Borough as they have given to it in Brooklyn. The first task is to ascertain the source of infection. There has been much talk of the milk supply, but so far nothing definite has been obtained along that line. One thing Dr. Darlington is bent on, and that is to keep the public aware of the actual conditions and to insist on full reports on all cases. Only in that way can the public be aroused to the danger which threatens it, he says, and only in that way can it be possible to fight against the further spread of the disease with any chance of success. In accordance with this policy he caused yesterday the publication of the following figures showing the state of affairs this year as compared with the conditions prevailing last year, when the number of cases here was normal:

1904.	July, 3 wk.	July, 4 wk.	Aug., 1 wk.	Aug., 2 wk.
Manhattan	33	44	29	38
Bronx	2	11	5	13
Brooklyn	27	15	26	32
Queens	2	7	5	2
Richmond	1	2	2	1

1905.	July, 3 wk.	July, 4 wk.	Aug., 1 wk.	Aug., 2 wk.
Manhattan	4	67	41	92
Bronx	7	11	10	7
Brooklyn	75	59	67	149
Queens	2	1	1	4
Richmond	..	3	3	2

School Children Inspection.—The health authorities, under the direction of Dr. Hermann M. Biggs, have just completed a very important investigation into the health of some of the school children of this city, which has shown a prevalence of disease exceeding their expectations. As a result they are compiling now a report to be made to the Board of Estimate which will describe the conditions found and which will ask that the city make a special appropriation for school inspectors sufficient to permit of regular monthly examinations of school children much wider in scope than any ever undertaken before. The figures compiled by the medical inspectors and now in Dr. Biggs' possession show that out of almost 14,000 children examined, more than 6,000, or almost half, had something the matter with them. That this proportion should exist, according to the doctors, shows the necessity of adopting some system by which every child showing disease of any form can be followed up by regular monthly examinations. To do that it will require a large increase in the present appropriation. While the health authorities have been gradually extending their work of looking after the health of school children, they have never gone so far as to make the general physical condition of a child part of the work of the Health Department. Until recent years all that the medical inspectors in the schools did was to examine all cases reported by the teacher as being possibly infectious. This work in itself requires a lot of inspectors. Later, skin diseases and pediculosis, which was especially prevalent, were included. For a year or more past monthly examinations have been made for the purpose of discovering such cases. The Health authorities have also been employing fifty trained nurses, known as school nurses. In Manhattan and the Bronx these nurses subject the children sometimes to daily examinations, besides visiting their homes and advising their parents. Last spring, when a sociological student raised the cry of breakfastless school children, Dr. Biggs had an examination made of this phase. It had hardly been completed before it was decided to have a general physical examination made of a certain number of children, which should include all kinds of diseases, bad nutrition, nervousness, mentality, enlarged glands, condition of the breathing organs, vision and hearing and all deformities of the spine or chest. No such examination had ever been undertaken before. The work was done by 100 inspectors. Four schools of the primary grade were taken. All of them were in the poorer quarters, but the worst quarters for disease were avoided in order that the results might be taken as general. About 2,000 children a week were examined, one doctor doing about six a day. The work was completed just before the end of the school year and the figures have just been put together.

The exact number of children examined, as announced yesterday by Dr. Biggs, was 13,941. Of this number, those described as "requiring medical attention" was 6,294. The number of ill-fed children found was 1,092. This is the complete result:

Total number examined, 13,941.	
Bad nutrition	1,092
Swelling in anterior glands	2,604
Swelling in posterior glands	706
Chorea (nervousness)	136
Cardiac disease	232
Pulmonary disease	204
Skin disease	227
Deformity of spine	118
Deformity of chest	162
Deformity of extremities	210
Defective vision	3,219
Defective hearing	460
Nasal breathing	1,623
Bad teeth	3,314
Deformity of the palate	196
Bad mentality	823
Requiring medical attention	6,294

In the case of many of the children put down as dull by their teachers it was found that this was due either to defective vision or defective hearing, for which absolutely nothing had ever been done by their parents. With the 13,941 children examined as a beginning, the health authorities have begun to keep a card index, which they hope to extend throughout the entire school system. On a card is put the name of the child and the date of the examination and just what he or she is suffering from. Printed notices have been prepared and sent to the parents, stating that the examination had shown the child to have an apparently abnormal condition, and suggesting that a doctor be consulted at once. It is the plan to examine all diseased children at the end of each month. If it is found that the parents have not consulted a doctor, one of the health inspectors or nurses will visit the child's home and find out why. "That every other child out of those examined should be found to require medical attention," said Dr. Biggs yesterday, "is something to which too much attention cannot be given. The influence these children have on the community's health is very large. The result was a surprise to us, particularly in the number found to have defective vision and swollen glands. The proportion is so high that the city should do something at once to reduce it. It can only be done by increasing vastly the number of inspectors and nurses in order to hold monthly examinations of the general physical condition of children and following up the parents of every child whom we see is not getting any attention. As yet we have been able to do only a few schools in Manhattan, but it is our purpose to take in the entire city."—*New York Sun.*

CHICAGO.

Apprehensive as to Yellow Fever.—According to a recent interview, Dr. James A. Egan, Secretary of the State Board of Health, expressed himself as being apprehensive of conditions in the South, and feared that yellow fever might gain a foothold in Southern Illinois unless extraordinary precautions were taken.

Rigid Inspection.—The restrictions imposed by the State Board of Health will be continued until frost comes, and every effort will be made to keep refugees from the infected districts out of Southern Illinois. Every passenger and freight train and boat coming from the South is carefully inspected at Cairo, Thebes, and Brookport. Day and night watchmen are stationed on the Illinois Central bridge at Cairo, and the entire water front is patrolled day and night.

Asks for Reforms in Cells.—According to Health Commissioner Dr. Charles J. Whalen, no basement in Chicago is a fit place for the housing of human beings. Commissioner Whalen recommends that the practice of confining prisoners in basement quarters be discontinued by the city as rapidly as possible. Mayor Dunne has received the Commissioner's report, and has agreed that radical changes should be made in the housing of prisoners in the police stations of the city.

Scopolamine-Morphine Anesthesia.—Dr. Emil Ries, of this city, has used scopolamine-morphine in a wide range of operations. He has used it so far on 72 patients in 92 operations. The following is a list of the operations performed. The number of operations is greater than that of the patients, because in a number of cases several operations were performed at the same time—for instance, appendectomy and femoral hernia, cholecystostomy and nephropexy, plastic operation on the vagina, curettement and ovariotomy, etc.: Amputation of breast, 1; amputation of thigh, 1; appendectomy, 12; appendiceal abscess, 2; cholecystostomy, 1; colostomy, 1; curettement, 8; cystoscopy, 3; extirpation of carcinoma recti, 1; extirpation of carcinoma uteri, 1; extirpation of goiter, 3; extirpation of testicle, 1; extirpation of tuberculous glands, 2; extirpation of tumor of chest wall, 1; extirpation of urethral caruncle, 1; operation for stenosis of cervix, 1; hemorrhoids, 6; abdominal hysterectomy, 5; vaginal hysterectomy, 3; laparotomy for pus tubes, 2; nephropexy, 1; nephrotomy, 1; plastic operations on vagina, 14; prostatectomy, 1; radical operation for femoral hernia, 2; for inguinal hernia, 10; for femoral hernia, 1; vaginal celiotomy, 3; vaginal ovariotomy, 1; varicose veins of leg, 1; ventrofixation, 1; total, 92. Of these seventy-two cases, three have died. A carcinoma of the uterus died from hemorrhage due to laceration of the iliac vein in dissecting off adherent enlarged lymphatic glands. The case of carcinoma of the rectum, in which the affected portion of the rectum was torn into during the operation, died of peritonitis five days after the operation. The case of prostatectomy, a very bad case of an old man in a septic condition, who was very anemic in consequence of repeated severe vesical hemorrhages, and who had the largest prostrate he had ever seen, much larger than his fist, died some six hours after the operation. In none of these cases could he accuse the scopolamine-morphine.

GENERAL.

A Correction.—In our report of the Section on Obstetrics of the American Medical Association we referred to Dr. Gould, of Wisconsin; it should have been Dr. W. E. Ground, of Superior, Wisconsin.

Dr. Simpson Retires.—Professor A. R. Simpson has retired from the chair of midwifery at the University of Edinburgh after a service of thirty-five years. Professor Simpson was the nephew and successor in the chair of Sir James Young Simpson, the discoverer of chloroform as an anesthetic.

Birthday of Dr. Benedikt.—Professor Moriz Benedikt, of the University of Vienna, known for his work on diseases of the nervous system, has celebrated his seventieth birthday. A dinner was given in his honor by the Neurological Society of Vienna and congratulations were presented from various societies of which he is a member.

Appointment of Dr. Manwaring.—Dr. Wilfred H. Manwaring, S.B. (Michigan, '95), M. D. (Hopkins, '04), at present fellow of the Rockefeller Institute for Medical Research and assistant in pathology in

the University of Chicago, has been appointed head of the new department of pathology and bacteriology in Indiana University, with the rank of associate professor.

Suits to Purify Water.—Attorney-General McCarter, representing the State Board of Health of New Jersey, began six suits in the Court of Chancery to-day for injunctions to restrain the pollution of tributaries of the Hackensack and Pequannock rivers, from which the cities of Newark, Hoboken and Hackensack derive their water supply. The pollution consists of the discharge of sewage and stable refuse into the streams.

Indiana Methods and the New York Medical Association.—In a decision recently by Circuit Judge Buckingham in the case of the State Board of Medical Registration against Dr. John M. Rhodes, he took occasion to score the board for the methods employed to secure alleged evidence against the physician. It was admitted in the argument for an injunction that the board employed a woman named Boykin to visit physicians and endeavor to get them to perform an illegal operation, and after such employment she would file charges against them before the board. She was accompanied by a man named McClelland, and both of them, after filing a number of affidavits against reputable physicians, left the State. It was upon this evidence that the board was proceeding against Dr. Rhodes, when he filed suit for an injunction, which Judge Buckingham granted to-day, thus preventing the board from proceeding on the woman's *en debem*. In his decision Judge Buckingham says that "if the State Board is so much interested in this matter that its decision would be biased and it has conspired to secure evidence on which to revoke the licenses of physicians by employing immoral persons to make advances, then the whole proceeding should be investigated by some competent board. The board in presenting its argument has not denied that these parties were in its employ." It is understood that the case will be appealed to the Supreme Court. We commend these statements to the attention of the present legal luminaries engaged in collecting fines for the New York State Medical Association in New York City.

A Plan for the Handling of Drunkenness.—A discriminating plan which Massachusetts has adopted for dealing with intoxicated persons is discussed in some of its aspects by *Charities*, writes the *Evening Post*. The new law which has recently gone into effect and has furnished the theme for much disrespectful humor is not, as is here pointed out, any novelty in principle. In fact, ever since 1891 the law has made a sharp distinction between habitual and occasional inebriates. At first the police were given the power of releasing the offender when sober, if he belonged to the second class. After two years this power of release was simply transferred to the courts. Instead of being asked to plead to the charge of being drunk, the question put to the man arrested was simply "whether he had been drunk before." If not, he could go his way. As a matter of fact, 16,000 men a year actually were so released. The new law again transfers this power, bestowing it this time on the probation officer, a functionary who did not exist when the principle of discriminating in such cases was first adopted. An important consequence of this change is that the arrested man will not have to appear in court at all, if the probation officer is satisfied that he will respond to a summons if wanted, and if the records show that he has not been arrested twice before within a year. If the general principle of leniency to first offenders is to be granted, as most of us believe, it is common sense that public appearance in court, with the disgrace that follows it, is almost as trying an ordeal as an actual sentence. It will at least be interesting to note how the change affects the proportion of first offenders who later reappear on the court records.

Medical Education in the United States.—The annual Education Number of the *Journal A. M. A.*, August 19, gives details about the location, course, faculty, equipment, students, etc., of every medical college in the country. During the year ended June 30, 1905, 26,147 persons (including 1,073 women) studied medicine at 157 colleges in 36 States and Territories, and 5,006 of these graduated. The students numbered 1,995 less than the number in 1904; graduates 141 less. The attendance at regular schools, 24,119, was an increase of 457 over 1904, but a decrease of 801 below 1903, and 759 below 1902. Attendance at homeopathic schools has been decreasing steadily since 1900, when it was 1,909; this year it was 1,104. At eclectic schools attendance increased yearly from 1900, when it was 552, to 1904, when it was 1,014, but this year it dropped to 578—a falling off of nearly one-half. All graduates number 141 less than last year; 92 less than 1903. Homeopathic graduates in 1903 were 420; 1904, 371; 1905, 276; but eclectic graduates (153) numbered more in 1905 than in any year since 1900. Three of the 157 colleges are exclusively for women, 63 for men, and 91 co-educational. In 1904 56.8 per cent. of the colleges had terms of less than eight months; now only 39 per cent. are in this class. Six months' schools have decreased from 27 (16.3 per cent.) to 15 (9.4 per cent.). Nine months' schools were 19 (11.6 per cent.) in 1904; now they are 38 (24 per cent.). Many other interesting facts may be derived from this painstaking collaboration of facts and from the critical editorial survey. *The Journal* says that the standards of preparation of study and of graduation have been raised considerably, showing that there is a disposition on the part of all concerned to elevate the standard of the profession by bringing into it men and women who are better prepared to practice medicine, and who will be a credit to the profession in every way. There has been a distinct gain in the entrance requirements during the past two or three years. This change for the better is due, in part, to a few individual colleges, but largely it is the result of concerted action on the part of several organizations which have it in their power to promulgate and to enforce rules and regulations for the government of colleges. The State examining boards, in particular, have exercised a most wholesome influence by raising the requirements and by taking an active part in the regulation of preliminary or preparatory education. It is evident that the length of the term does not sway the student in his selection of a college, because over 61 per cent. of students attended long-term colleges. Students are more and more taking into consideration the standing of the college and what it has to offer. Fees, entrance requirements and length of term are secondary considerations with the better class of students.

Birth Rate's Decline Since 1860.—That "there has been a persistent decline of the birth rate in the United States since 1860," is the conclusion reached in a bulletin issued a week ago by the Census Bureau. The bulletin was prepared by Prof. Walter F. Willcox, of Cornell University, and it is explained that "although the analysis made offers many suggestions as to probable tendencies in the birth rate of the United States, it is, primarily, not a study in birth rates, but a study

in the proportion of children to the total population or to the number of women of child-bearing age. The result of the study shows that at the beginning of the nineteenth century the children under ten years of age constituted one-third, and at the end less than one-fourth of the total population. The decrease in this proportion began as early as the decade 1810 to 1820, and continued uninterruptedly, though at varying rates, in each successive decade.

Between 1850 and 1860 the proportion of children to women between fifteen and forty-nine years, the child-bearing age, increased, but since 1860 it constantly has decreased. It is stated that the decrease has been very unequal from decade to decade, but that if the computation is made upon the basis of twenty-year periods, it has been regular. In 1860 the number of children under five years of age to 1,000 women, fifteen to forty-nine years of age, was 634; in 1900 it was only 474. The proportion of children to potential mothers in 1900 was only three-fourths as large as in 1860. No attempt is made by the author of the bulletin to determine the probable causes of this decline. An extended argument by Gen. Francis A. Walker is given suggesting that it is largely due to the influx of foreigners, and the resultant shock to the population instinct of the natives. Prof. Willcox does not express a definite opinion, claiming that the vital statistics of the United States are not sufficiently developed to afford a sound basis of judgment. He notes, however, that there has been a similar marked decline in the birth rate of Australia, where there has been no such torrent of immigration. Considered sectionally it is found that in the North and West there has been a more or less regular decline, while in the South the change has been less regular and the decline less marked. In 1900, for the United States as a whole, the proportion of children was only two-thirds as great in cities as in the country districts. In the North Atlantic division, however, it was almost as great in the cities as in the country. In the Southern division it is hardly more than half as large in the cities as in the country, while in the Far West the difference is intermediate in amount. A comparison is made between the proportion of children born of native mothers to 1,000 native women of child-bearing age and the proportion of children born to foreign-born mothers to 1,000 foreign-born women of child-bearing age. In 1900 the former proportion was 462, the latter 710, the difference indicating the greater fecundity of foreign-born women. The proportion of negro children to negro women fifteen to forty-nine years of age was largest in 1880, and smallest in 1900. There has been uniformly a larger proportion of negro children than of white children. That difference more than doubled between 1860 and 1880, but in 1900 it was less than half what it was in 1880, and less than at any other census except 1860. Though negroes have a larger proportion of children than the whites, it has been noticed that the whites of the South have a larger proportion than the whites in other sections of the country.

OBITUARY.

Dr. Edward W. Doty, formerly of Paterson, N. J., who died at the home of his father-in-law, Captain D. F. Allen, at Dover, N. J., last week, had a varied career, having been a railroad man, telegraph operator, newspaper correspondent, gold miner and physician. He was born in Newark in 1856. He learned telegraphy and worked at this vocation in a little Ohio town, at the same time acting as correspondent for several papers. Later he took to railroading and later studied medicine. Subsequently he became interested in a gold mine and organized a company to work it, but the enterprise was unsuccessful. After graduating at the Long Island College Hospital in 1886 he went to Paterson and established a large practice.

Word has been received of the death at Uremea, Persia, of Dr. Joseph Plumb Cochran, a missionary of the Presbyterian Church, who has been in that field for twenty-seven years. His father and mother labored in the same field before him and are buried there. Dr. Cochran was educated in Buffalo, and in Yale, and took his degree in the College of Physicians and Surgeons in New York. He was very successful in his field of endeavor, establishing the first hospital in all Persia, and gained tremendous influence. In 1880 he interferred so successfully in an invasion of Kurds into northwestern Persia that Uremea, threatened by the tribes, was saved, and the Shah conferred on him the Order of the Lion and the Sun, which at that time had been conferred only twice on non-Mohammedans. More than a year ago, Dr. Cochran's life was threatened by a fanatical native in resentment over his effort to protect a mountain tribe from Kurdish oppression, and in the hostilities that followed the Rev. Benjamin Labbaree was murdered. Dr. Cochran went to Persia in 1878, and has been home only twice on furlough.

SOCIETY PROCEEDINGS.

AMERICAN GYNECOLOGICAL SOCIETY.

Thirtieth Annual Meeting, held at Niagara Falls, May 25, 26 and 27, 1905.

(Continued from Page 381.)

Appendicitis in Its Relation to Pregnancy.—Dr. A. Lapthorn Smith, of Montreal, said that no machine was stronger than its weakest part, and in the human mechanism the weakest part was the one which was the least used. Owing to present methods of living the vermiform appendix was one of the least used organs, and consequently the weakest. In all cases of pelvic disease, and in most cases of pregnancy in cities, the whole organism was weakened and labored under difficulties. There was, therefore, in such cases a special reason why an organ, which even in man was unable to withstand the attacks of bacteria, should be unusually liable to infection, ulceration and gangrene. In many cases of supposed pelvic disease, and fever after delivery, the appendix was responsible for most of the trouble, although it might not always present gross lesions. Therefore, no woman should be allowed to begin or continue a pregnancy with an appendix which was known to be chronically inflamed, and all operations for the removal of the uterine appendages should begin by the removal of the vermiform appendix.

Dr. Seth C. Gordon said it was his invariable rule, whenever he opened the abdomen for any other purpose, to remove the appendix, whether good, bad or indifferent.

Dr. Frederick W. Sears stated that one should not be fearful about operating upon pregnant women for appendicitis, as his experience had been that they bore the operation better than the non-pregnant. His experience in operating on pregnant women for appendicitis had been limited to three cases.

Dr Andrew F. Currier did not believe that it was good surgery to remove any organ of the body which he was not convinced was diseased. In certain cases in which there was a strong probability of malignant disease, an exception could be made; but the function of the surgeon was to build up rather than to remove.

Dr. Clement Cleveland looked upon the appendix as a useless organ, and when operating for other intra-abdominal conditions he would not hesitate to remove the appendix. In cases where the appendix had not been found diseased, but had been removed, there was no history to show that any harm had come to those patients. The effect had been *nil*. The arguments of Dr. Currier did not appeal to him.

Dr. Fernand Henrotin said that so far as clinical observation was concerned, the appendix was not only responsible for inflammatory attacks, but for a good deal of indigestion, colic, dyspeptic symptoms, and trouble in the abdomen which was never accurately diagnosed. After an operation for its removal patients were less affected. He would remove the appendix in every instance when operating for some other purpose, unless there were contraindications to its removal.

Dr. Herman J. Boldt said that quite recently a woman, pregnant about the fourth month, had a number of attacks of acute pain in the abdomen. Upon bimanual examination under ether it was impossible to determine anything definite, but because of the extreme pain he opened the abdomen and found an appendix about six inches long, curled upon itself, in a state of acute inflammation. Since its removal the woman had been well. He narrated other similar instances.

Dr. James F. Baldwin, of Columbus, Ohio, had for the last eight years made it a routine practice to examine the appendix in all cases when operating for other intraabdominal pathological conditions, and had removed the appendix in a large number of cases. Out of 3,000 abdominal sections, he had removed the appendix 1,800 times.

Dr. E. P. Davis said there were special reasons why appendicitis should appear in pregnant women, and why the appendix should be removed during pregnancy. As a general proposition, the *Bacillus coli communis* was present in abundance in the intestine of every pregnant woman, and any condition of the intestinal tract during pregnancy which in the slightest degree lessened peristalsis of the normal intestine predisposed to infection by that organism—infection of the adnexa, the uterus, or the appendix. On the other hand, a pregnant woman, whose metabolism was well maintained, was in good condition for a surgical procedure, because she had a physiological blood plethora. She bore anethesia well. The removal of the appendix was applicable to pregnant women and need not be delayed until after delivery, as it was much safer to do the operation during pregnancy than to let the woman run risk.

Dr. Arthur W. Johnstone said that his experience had been limited to four operations performed on pregnant women for appendicitis between two and a half and four months. All recovered. There were no miscarriages.

Dr. Malcolm McLean had not arrived at the point where he would remove an organ simply because it might in the future give trouble. He advanced reasons for taking this stand.

Dr. Ely Van de Warker saw no reason why, if one saw a perfectly healthy appendix, and the abdomen was opened for some other purpose, it should be removed for fear that something was going to happen to it in the future. Such a proposition seemed to him too absurd to discuss. Appendicitis was comparatively rare, in his opinion. In going through the community, and he had spent his life in doing gynecological work, and having opened the abdomen thousands of times, he had examined the appendix and had never removed one, yet he had seen no harm ensue from leaving it. If one were to follow such reasoning, he might as well remove the gall-bladder and other organs for fear they would cause trouble in the future.

Dr. J. Riddle Goffe did not believe in removing a healthy organ, such as the appendix, when we did not know what its function was. It might have some function. There was a time when physicians did not know the function of the spleen, but it was not removed because the abdominal cavity was opened. There was a time when we did not know the function of the thyroid gland, but surgeons did not take it out. He thought we might wake up to the fact some day that the appendix had a function.

Dr. Philander A. Harris raised his voice very strongly against removing perfectly healthy appendices unless there was abundant time to do it, or unless the patients desired it.

Dr. H. J. Lipes, of Albany, said the appendix had a decided function. It was composed largely of mucous glands, situated in the lower part of the cecum, and there was no more stagnant portion of the intestinal tract than it, and no portion that needed lubrication more in getting rid of the fecal material. He thought this mucous secretion helped along the digestion.

The Radical Abdominal Operation Versus the Vaginal Operation for Carcinoma of the Uterus.—Dr. C. C. Frederick, of Buffalo, N. Y., read a paper on this subject, in which he drew the following conclusions: "(1) The radical operation for carcinoma of the uterus should be done only when the gross lesions can quite certainly be diagnosed as confined to the uterine tissue. (2) The deeper tissues of the cervix were generally invaded first, and also the deeper layers of the vagina in the immediate vicinity of the cervix were infected before the disease appeared upon the mucous surface. (3) The bladder wall was very early infected, especially when the anterior lip of the cervix was the starting-point of the growth. (4) When pain became a prominent symptom, the growth had passed beyond the uterine tissue. Such an involvement was a positive contraindication to a radical operation. (5) Carcinoma of the body presented an entirely different condition. In these the liability of extrauterine lymphatic infection was less for the same period of growth. (6) When the radical operation was done, it was necessary to remove as much of the vaginal walls and pericervical tissues and broad ligaments as possible. (7) It was a well attested fact, that in most recurrences after hysterectomy, the growth was found in the cicatrix and the adjacent vaginal tissues. (8) In view of the point at which recurrence began, removal of the pelvic lymphatics and glands did not insure against recurrence. (9) If the vagina was ordinarily capacious, and if the uterus could be drawn down, it would seem that the vaginal route was naturally the one by which the operation could be most readily and thoroughly done. (10) It was possible, yes probable, that some cases of recurrence were due to the infection of the freshly incised tissues at the time of operation by contact of the carcinomatous mass or its fluids. By the vaginal operation this might to a degree be prevented by the removal of the cancerous mass or by thoroughly cauterizing it before beginning the operation proper. (11) The operation could be more quickly done than by the abdominal route. (12) Convalescence, after vaginal operations, was much more rapid; there was much less pain, and there was much less shock to the nervous system. (13) For the cervical carcinoma, in most instances the combined clamp and cautery operation seemed to be the preferable one. (14) Undoubtedly, infected areas were reached and rendered harmless by the free use of the cautery in this operation. (15) The vaginal walls and all

tissues should be seared by it, except those at the utero-vesical junction." The writer would therefore limit the abdominal operation to those patients in whom the condition of the vagina or immobility of the uterus made the vaginal operation practically impossible.

Paravaginal or Abdominal Operation in Carcinoma of the Uterus.—Dr. George Gellhorn, of St. Louis, Mo, in a paper with this title, presented the following conclusions: (1) The object of the symposium was to discuss how we might prove our operative technic in order to better the results in uterine cancer. (2) The following conclusions applied only to cancer of the cervix uteri. (3) The radical abdominal operation, so far as the routine ablation of the lymphatic organs of the pelvis was concerned, had thus far failed to yield the desired results. (4) On the other hand, the eradication of the parametria had been found to reduce greatly the percentage of cures. (5) The simple abdominal and vaginal operations which did not include this procedure should be discarded. (6) For the extirpation of the parametria, Wertheim's method was the best of the abdominal operations. It had, however, he believed, certain disadvantages as compared with the paravaginal method of Schuchardt. (8) Considering the encouraging results of igni-extirpation, a combination of thermo-cautery with paravaginal extirpation gave promise of further improvement in operative results.

A Suggestion for the Surgical Treatment of Incontinence of Urine in Women.—This was the title of the President's Address, delivered by Dr. E. C. Dudley, of Chicago. After referring to the expansion of gynecology, he suggested an operation which was based on the same principle as that proposed by Albarran, namely, advancement of the meatus urinarius to the clitoris, but this was done without dissecting the urethra free and, therefore, it obviated the danger of sloughing of the urethra; it was performed as follows, in two steps:

"*First Step.*—A horseshoe-shaped surface is rather deeply denuded between the meatus urinarius and the clitoris, and to either side of the urethra throughout the entire length of it.

"*Second Step.*—The meatus is drawn up to a point near the clitoris, and is secured there by means of two sutures. The lateral portions of the denuded surface are now closed. The effect of the operation is to replace and to retain in its functional relations the sagging displaced urethra. The two purse sutures necessarily stretch the urethra upward to the region of the clitoris, and that the lateral sutures must tend to hold it in its new position. By this means, it is proposed to straighten out the urethrocele by longitudinal traction, and by lateral traction to collapse and hold together the dilated walls of the urethra, and thus to overcome the sacculation at the neck of the bladder, where residual urine is apt to accumulate and give rise to trigonitis, cystitis, and possible incontinence. In many cases, it will be necessary to combine with the operation some appropriate surgical treatment for an associated cystocele and in nearly all cases to perform perineorrhaphy to relieve also relaxation of the posterior vaginal outlet."

In one case he saw fit to narrow the pouching urethra in order to overcome the urethral dilation. He had performed this operation five times since January 1, 1905. In the first four cases, relief from incontinence was immediate, and had been continuous. The last operation was too recent to be taken into account. In one case there was so much relaxation of the skin and other soft parts in the region of the clitoris that he feared the sutured urethra might pull these structures down to the old malposition instead of being held up by them, but so far it remained well in place. In such a case, again, or in the event of recurrence from such a cause, he should be disposed to make a deep oval denudation over the pubes on the nons veneris, just above the clitoris, the longer axis of the oval being directed transversely, and to unite the margins of this wound by a transverse line of union, so as to make the clitoris a fixed point on a sufficiently high plane to hold the urethra taut. For obvious reasons, this procedure would be preferable to the removal of the clitoris, and the union of the meatus to the parts thereby exposed.

The Mortality in Operations for Fibroid Tumors of the Uterus.—Dr. J. Montgomery Baldy, of Philadelphia, contributed a paper on this subject. Degeneration of fibroid uterus, except malignant and necrotic, were of more scientific interest than practical value. The greatest dangers of fibroids lay in the large death-rate following operations due to heart degeneration, arterial changes, lung thrombosis, etc. He pointed out the conditions inherent in all fibroid tumors of the uterus, and said the tumor should be removed at a period early enough to anticipate the changes.

Migratory Uterine Fibroids.—Dr. Reuben Peterson, of Ann Arbor, Mich., reported cases showing the different stages of the separation of uterine growths from the uterus, and their attachments to other abdominal organs. The causes and results of such migration were studied in the light of the literature on the subject, and the personal experience of the author. Case I was an irregularly shaped subperitoneal fibroid, the size of a fist, attached to the uterus by a very slender pedicle. The latter was very friable and broke away from the uterus during the removal of the latter. The omentum was attached to the posterior surface of the fibroid and partially nourished it. Case II was one of the subperitoneal uterine fibroid, the size and shape of a normal kidney, connected with the uterus by a narrow pedicle, twisted once on itself. The tumor was situated on the right uterine horn, although the pedicle came from the other horn. The tumor was also attached to the bladder, pelvic peritoneum, omentum, and appendix. Case III was a hard, smooth tumor, the size of an orange, unattached to the uterus, having all the characteristics of a subperitoneal fibroid, surrounded on all sides by the omentum and nourished entirely by the omental blood vessels.

Surgical Treatment of Ulcer of the Stomach.—Dr. William H. Wathen, of Louisville, Ky., after discussing the various pathological conditions indicating the necessity for stomach drainage, and the operations that had been performed, drew the following conclusions: "(1) Some cases of acute and subacute gastric and duodenal ulcer, and many cases of chronic and duodenal ulcer, should be treated by efficient stomach drainage into the duodenum or jejunum. (2) Drainage by pyloric divulsion and by pyloroplasty with its modifications has not been sucessful, and these methods are now practically obsolete. (3) Gastroduodenostomy, as modified by Kocher and Finney, may give efficient drainage in many cases, but it should be limited to such cases as cannot be operated upon a posterior retrocolic gastroenterostomy with the anastomosis near the duodenojejunal flexure. (4) Anterior anticolic gastroenterostomy should not be an operation of election, but an operation of expediency or necessity, to give temporary relief, or to meet special abnormal conditions that may contraindicate the posterior attachment. (5) The ideal operation of election must be the posterior retrocolic attachment near the beginning of the jejunum, and at the bottom of the stomach in the pyloric end, thus eliminating the

loop. (6) This gives the most efficient drainage, prevents the vicious circle and regurgitant vomiting, stomach and intestine in nearly normal relation, and is followed by better immediate and ultimate results. (7) The intestinal incision should be made longitudinally, and not less than two inches long, and the stomach incision of corresponding length, preferably in the oblique direction. An elliptical strip of mucosa should be incised from both stomach and intestinal incision. (8) The anastomosis is best made with a continuous suture (Pagenstecher or silk), using a full curved round-pointed needle. The suture should be applied in double layers, the inner to include all the visceral layers, and unite the cut edges of the opening; the outer, one-fifth inch away, to include the serous and subserous layers. (9) Enteroenterostomy, or closure or resection of the proximal jejunum or the pylorus, is unnecessary. It commits a traumatism and leaves a deformity that may cause immediate and subsequent bad results."

SYMPOSIUM ON THE TOXEMIAS OF PREGNANCY.

Clinical Types of Pregnancy Toxemia.—Dr. J. Clifton Edgar, of New York, contributed a paper with this title, in which he considered the benign type, subacute type, acute type, fulminant type, toxemic coma without convulsions, acid toxemia simulating hepatic pregnancy toxemia, persistent hyperemesis without clinical symptoms of toxemia, etc. Cases illustrating each type of toxemia were reported.

Renal Insufficiency.—Dr. Henry C. Coe, of New York, contributed a paper on this subject as a part of the symposium. This referred not only to diminished amount of urine, but to deficient excretion of urea, with or without accompanying albumin and casts. The importance of this subject could not be overestimated, on account of its direct bearing on the prevention of eclampsia. He mentioned the erroneous views formely held that eclampsia always came suddenly, without warning. Now it was known that danger signals were seldom absent long before the attack, if careful watch was kept over the urine. Diminished urea, not the presence of albumin, was the important point. There were two channels for the excretion of toxins, the kidneys and intestines. Both must be made use of. The kidneys and bowels should be flushed, and the diet regulated all through pregnancy. One should know the daily amount of urine at frequent intervals, and the amount of urea. He should not wait for general evidences of toxemia, gastric disturbances, puritus, headache, etc., but anticipate them. Preventive medicine had nowhere more important application than in the case of a pregnant female. Everyone had had occasion to reproach himself for carelessness in this particular. Illustrative cases are cited.

Pernicious Vomiting of Pregnancy.—Dr. J. Whitridge Williams, of Baltimore, after pointing out the distinction between vomiting of and vomiting in pregnancy, divided the former into three groups, and discussed their nature, etiology and treatment, namely, reflex, neurotic, and toxemic. The reflex vomiting of pregnancy might be due to the presence of abnormalities of the generative tract or ovum, which existed prior to the onset of pregnancy, or were coincident with it. Among such conditions might be mentioned retrodisplacements of the uterus, ovarian tumors, certain forms of endometris, and abnormalities of the ovum, such as hydatidiform mole, hydramnios, and certain cases of twin pregnancy. The observations of the author and others showed that typical lesions might be found at autopsy in certain cases, and these consisted in the necrosis of the central portions of the liver lobules, and fatty degeneration and necrosis of the secretory cells of the kidney. Such changes could be produced only by the circulation in the blood of some toxic substance, which acted destructively upon the cells in question. The occasional occurrence of jaundice in some cases added confirmation to the existence of an hepatic lesion; while the not infrequent association of peripheral neutritis with the vomiting accentuated the probability of its toxemic origin. The liver lesions were identical with those observed in acute yellow atrophy of the liver, and icterus gravis, though in most of the cases of vomiting no marked diminution in the size of the liver had been noted. As the former affections occurred usually in the second half of pregnancy, and the vomiting in the first half, it seemed probable that the effect of the toxemia varied somewhat with the duration of the pregnancy. At present the profession is unacquainted with the exact nature of the toxic substances, though they were supposed to be metabolic in origin, but whether derived from the mother or fetus, or both, was not known. All that was definitely settled at present was that one had to deal with a toxemia, which gave rise to serious lesions in the liver, and later in the kidneys. That the latter were secondary in character was indicated by the fact that the urine did not contain albumin or casts until shortly before death. Associated with these lesions was a striking change in metabolism, manifested by a marked increase in the percentage of the total nitrogen of the urine put out as ammonia, which, instead of being two to five per cent., as normal, might rise to 16, 32, or even 46 per cent. Whether the increased ammonia output was due to the fact that the liver lesions interfered with the normal oxidation of nitrogenous material, so that large amounts escaped conversion into urea, and were therefore excreted in a less highly oxidized form, as ammonia, or whether it represented an attempt to neutralize an acid intoxication, was as yet undetermined. The practical point established was that a marked increase in the percentage of the urinary nitrogen excreted as ammonia indicated the existence of a serious toxemia, which, if allowed to continue, would bring about lesions in the liver and other organs inconsistent with life, and accordingly abortion should be induced as the only hope of saving the patient. It was probable that an ammonia output of 10 per cent. represented the danger signal, and as soon as it was reached immediate interference was demanded. In the reflex and neurotic forms of vomiting, the ammonia output remained normal, and accordingly in such cases the treatment should consist of correcting genital lesions, if present, and the employment of mental suggestion and rest cure. There were at least two forms of toxemia of pregnancy, one giving rise to pernicious vomiting and acute yellow atrophy, and the other to eclampsia. These conclusions as to the nature of the vomiting of pregnancy were based upon a number of imperfectly observed cases in previous years, and seven carefully studied cases occurring during the past two years.

Eclampsia and Its Treatment.—Dr. Cyrus A. Kirkley, of Toledo, Ohio, said that other toxins than urea might produce eclampsia. Mixed infection was most probable. Renal insufficiency rather than albuminuria was an etiological factor. Although the source of the toxins was unknown, recent research rather pointed to functional disease

of the liver. Prophylactic treatment, as a rule, was successful, and this consisted of means to promote elimination through the great emunctories. Venesection in suitable cases, both as a prophylactic and curative measure, stood first in the list of remedies.

The Treatment of Eclampsia.—Dr. Frank S. Newell, of Boston, Mass., before considering the curative treatment of eclampsia, discussed the prophylactic treatment, because there was little question but that eclampsia was a preventable disease in the great majority of cases, even of those who developed the signs of a toxemia. Prophylaxis should be directed to the prevention of any accumulation of waste products at any period of pregnancy, combined with the ordinary hygienic measures to maintain and improve the patient's general condition. The treatment, to be efficient, should have four distinct objects in view: (1) The prevention of further absorption of toxins by the removal of the cause; (2) limitation of damage by the toxins already in system; (3) elimination of the toxins, and (4) treatment of the patient. These objects were discussed in consecutive order, and at considerable length. As to after-cure of the patient, for some days after the acute process had subsided the patient should be kept on a liquid diet. Absolute quiet and freedom from care were imperative, and free excretion should be maintained. Sedatives and stimulants should be used as indicated.

Vaginal Cæsarean Section, Its Indications, Advantages and Technic.—Dr. Henry D. Fry, of Washington, D. C., said that the chief indications for the employment of vaginal Cæsarean section, and that which had mainly led to its adoption, were the prompt and easy emptying of the uterus in cases of grave eclampsia. Other indications claimed were cancer of the uterus, rigidity of the os, threatened rupture of the uterus, prolapse of the funis, placenta prævia, heart disease in the pregnant woman, and hemorrhage from the normally implanted placenta. The writer entertained grave doubts regarding the application of this operation or any other method of rapid dilatation to the treatment of placenta prævia. The reduced maternal mortality from this serious complication was largely due to recognizing the value of slow dilation. One might be tempted to employ it in a case of placenta prævia complicated by long undilated cervix, but this condition presented the limited field assigned to abdominal Cæsarean section. He summed up the various indications for this new operation. The advantages of vaginal Cæsarean section were the rapidity with which the uterus could be emptied. From six to ten minutes was all the time that operators had reported necessary, and as they became more familiar with the technic, it might be further reduced. Few operators had done more than one or two operations. Twenty to thirty minutes should complete the sewing up of the wound. There was little traumatism, and a clean surgical cut to sew up instead of leaving the lacerated surface. In eclampsia the blood resulting from the operation was beneficial, and the patient was returned to bed in the best condition to overcome toxemia.

The Mortality of Operations, Other Than Strumectomy, in Cases of Exophthalmic Goiter, with Special Reference to Gynecological Operations.—Dr. Barton C. Hirst, of Philadelphia, said that to learn the collective experience of American surgeons with Graves' disease complicating operations, 336 letters were despatched to the members of the national societies of surgery and gynecology. Forty-three surgeons reported 60 cases. This number added to the 6 collected and reported by Sanderson, made a total of 75. Of this number, 13 died. In 11 of these fatal cases the cause of death was expressly stated to be acute thyroidism, with tachycardia to an extreme degree, and eventual heart failure. In one case of appendiceal abscess the patient died of the combined effects of sepsis and thyroidism. In another case of pelvic abscess, the patient died under chloroform before the operation was begun. Excluding these two cases, the mortality from thyroidism was 14.6 per cent., or, including them, 17.3 per cent. The character of the operation semed to have made little difference in the results. The mortality of the minor operations was 16 per cent.; that of the hysterectomies and myomectomies, 13.3 per cent. It appeared, therefore, that the existence of exophthalmic goiter added about 15 per cent. to the mortality of any operation performed upon the patient. In the first of the author's patients, there had been a distinct goiter and exophthalmos for years, but the tachycardia was moderate. The symptoms in this case were never very alarming, and soon yielded to treatment. It was not known that the second patient had Graves' disease until two days after the operation, when the pulse rose to 180; the eyes protruded, and the throat swelled. He then learned that since girlhood the woman had been subject to such attacks, but lately had been free from them. Although some improvement was shown after hypodermoclysis, purgation and heart stimulants, on the first day that symptoms appeared, a rapid and complete recovery was secured in the next three or four days, apparently in consequence of the administration of suprarenal extract in three grain doses every four hours.

Sudden Death During or Immediately After the Termination of Pregnancy or Operation on the Pelvic Organs in Women.—Dr. Edward P. Davis, of Philadelphia, reported three instructive and interesting cases, and presented a table of 25 typical cases, selected from 193 papers on the subject consulted, and drew the following conclusions: (1) That sudden death might occur after abortion, labor or operation, from undemonstrable causes. (2) Death might follow abortion, labor or operation from the rapid formation of a pulmonary embolus. Examination of cases showed that this happened after so many different procedures that it was impossible to designate any one operation or manipulation which produced it. Pulmonary embolism might develop before the placenta had been delivered, or when delivered by Credé's method; although it was impossible to select any one manipulation which produced this accident. It was not frequent after Cæsarean operation, nor after the more complicated obstetric operations. Predisposing and probably exciting causes were bronchial infection and abnormal conditions of the blood. In 18,800 women in childbirth or having operation, 30 cases of immediate pulmonary embolism occurred, with a mortality of 73 1-3 per cent. Diagnosis, respiratory spasm, with continued heart action. Treatment, hypodermatic stimulation and electric current. Intravenous saline transfusion had not been proven efficient. (3) Primary thrombosis and secondary embolism might cause death after the termination of pregnancy or operation. Causes: Preexisting infection, mechanical violence, altered conditions of blood serum, and lesions in the walls of the vessels. Most important symptom, Mehler's sign, rapid pulse.

Temperature curve in these patients fell on the third or fourth day, while the pulse curve rose. Death usually occurred from secondary formation of pulmonary embolus. Treatment consisted in absolute rest, bandaging of extremities, and in some cases abdominal section with ligation and excision of the veins of the broad ligament. Pulmonary complications developed in 25 per cent. of the cases. Thrombosis was most common in vessels connected with the left iliac vein. There was not conclusive evidence that the entrance of air into the veins was a sufficient cause for death. Gas might form in the vessels from infection. (4) Sudden death occurred in parturient women, and after operation, from reflex nervous shock, without assignable cause; also from disease of the thoracic viscera, from infection of the placental site, and other obscure conditions. Patients having fibroid tumors were especially liable to disease of the heart and vessels.

What is the Present Status of Electricity as a Therapeutic Agent in Gynecological Practice?—Dr. Chauncey D. Palmer, of Cincinnati, Ohio, spoke of the importance of this subject, and referred to its evolution. He referred to the value of measuring current in individual cases, and discussed at great length in what classes of gynecological cases electricity was useful. The possibilities of electricity as a therapeutic agent were by no means limited. The object of the paper was an effort to speak of electricity and place it on its proper basis, not to magnify or misrepresent its virtues, nor to deprecate its powers.

Officers.—The following officers were elected: President, Dr. R. B. Maury, Memphis, Tenn.; First Vice-President, Dr. Howard A. Kelly, Baltimore, Md.; Second Vice-President, Dr. Reuben Peterson, Ann Arbor Mich.; Secretary, Dr. J. Riddle Goffe, New York; Treasurer, Dr. J. Montgomery Baldy, Philadelphia.

Hot Springs, Va., was selected as the place for holding the next annual meeting.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Stated Meeting, held March 22, 1905.

The President, James M. Anders, M.D., in the Chair.

SYMPOSIUM ON PNEUMONIA.

The Health of the City.—Dr. Thomas Darlington, Commissioner of Health, of New York City, in this paper spoke upon The Pneumonia Commission, saying that it would conduct its investigation along two main lines—clinical and bacteriological—and that information is especially desired on the following points: (1) The occurrence and virulence of the pneumococcus and organisms related to or resembling it, in the human mouth in health and disease. (2) The evidence and the extent of variations in virulence of the pneumococcus under different conditions. (3) The occurrence of the pneumococcus in children's hospitals, homes and asylums, and the bacteriology of the mouth before and after outbreaks of pneumonia. (4) The vitality of the pneumococcus under various conditions. (5) The value of mouth disinfection. (6) The bacteriology of the air of public places, conveyances and buildings and private dwellings, especially in reference to its dust content. The public buildings to embrace stores, factories, large office buildings, public schools, theaters, hospitals, tenements and private houses. (7) The clinical evidence of the communicability of pneumonia as shown by the collection of cases in private houses and public institutions. (8) The seasonal relations of pneumonia. (9) The collection of statistics of pneumonia of the different varieties occurring in hospitals, special attention being paid to terminal pneumonia. (10) The collection of evidence as to the proportion of cases in which pneumonia can be regarded as an autoinfection, and the proportion of cases in which there is evidence of the communicability of the infectious agent. (11) The study of sporadic cases of pneumonia, special attention being given to relationships of the individual to crowds or to exposure to other cases of pneumonia, and the determination of the presence of the pneumococcus in the mouth in those cases and cases associated with them. (12) The evidence for the belief that pneumonia is infrequent in Arctic regions. (13) A statistical study of pneumonia, covering its prevalence in different lattitudes and in different countries and cities, its yearly and seasonal variations and its types and mortality.

The Symptomatology and Diagnosis of Atypical Forms of Pneumonia.—Dr. J. C. Wilson pointed out the fact that the application of the term pneumonia to two conditions clinically and pathologically essentially different, namely bronchopneumonia and croupous pneumonia, has been the cause of misleading therapeutic conclusions and rendered much of the statistical data relating to the prevalence and death rate of croupous pneumonia absolutely worthless. Acute pneumonic phthisis, syphilitic pneumonia, inhalation or deglutition pneumonia, postoperative and anesthesia pneumonias, hyperstatic pneumonias and influenzal pneumonias, as well as pneumonias of measles and pertussis, are not to be regarded as atypical forms of pneumonia, but are properly to be classed with the bronchopneumonias. When the above cases are referred to their proper nosological position there remains to be considered the great group of cases of croupous pneumonia, probably the most important of the acute infectious diseases of the present historical epoch, just as enteric fever was the most important of the last century, typhus of the previous three centuries and the plague the most important of the middle ages. These diseases have lost their terrors for our civilization because our methods of living are hostile to their spread and we have learned, even if we do not universally practice them, the sanitary laws by which they can be controlled.

Croupous pneumonia, it was stated, yet defies the profession, though Preventive Medicine offers some light upon the solution. Dr. Wilson regards it as difficult to draw a sharp line between the classical and the atypical cases. Here, as in other uncertain matters in medicine, it is necessary to be content with conventions. It is generally agreed among descriptive writers upon croupous pneumonia that the cases occurring in infancy, old age and in drunkards are atypical; yet, the majority of physicians have many times seen perfectly typical cases under these conditions. Nevertheless, the following forms are generally regarded as differing sufficiently widely from the type to deserve separate and special consideration: Pneumonia in infants; pneumonia in the aged; pneumonia in the alcoholic—pneumonia potatorum; toxic, so-called typhoid pneumonia; epidemic pneumonia; larval pneumonia.

From the standpoint of the pulmonary lesion the following atypical forms are to be considered: Upper lobe pneumonia, so-called apex pneumonia;

pneumonia migrans; central pneumonia; terminal pneumonia; pneumonia in pulmonary emphysema, hemorrhagic pneumonia. The diagnosis of typical cases of croupous pneumonia it was stated is unattended with difficulty, errors arising much more frequently from carelessness than from ignorance. Too much importance, he believes, cannot be attached to a systematic routine examination of the chest in all cases of acute disease beginning abruptly with chill followed by fever or presenting pulmonary symptoms. The diagnosis becomes difficult in proportion as the departure from type becomes more marked. In the extreme forms of atypical pneumonia—the terminal pneumonias—the clinical diagnosis is very often impracticable. Herpes, which occurs in more than half the cases, is of diagnostic importance. The detection of the pneumococcus in the laboratory reinforces the clinical diagnosis. It can only rarely be utilized in diagnosis except to this extent. Leucocytosis is an almost constant phenomena. Its diagnostic importance is diminished by the fact that it also occurs in most of the conditions in which the question of differential diagnosis arises. Leucopenia is of most unfavorable prognostic significance.

The Medical Treatment of Pneumonia.—Dr. H. A. Hare in a paper by this title dealt chiefly upon the points that the statistics as to the mortality and as to the results of treatment in pneumonia are practically valueless, because different types of this disease are considered under the one heading of pneumonia, when in reality only the most careful differentiation of different types can give reliable statistics. Again, he says, much depends upon the age of the patient and the time at which treatment is instituted. He approved of the use of moderate doses of digitalis and belladonna for a failing circulation and advised a more moderate employment of strychnine, and the rare employment of nitroglycerin, except in cases of definite indication for its use. The subject of venesection, hypodermoclysis and intravenous injection was also considered.

Some Recent Developments in the Etiology and Pathology of Pneumonia.—Dr. Warfield T. Longcope said that in spite of the extensive investigations upon the pathogenesis of lobar pneumonia, bacteriologists and pathologists have added little which aids in the diagnosis, treatment or prevention of the disease. The exciting cause is now known to be the pneumococcus or *Micrococcus lanccolatus*, and the organism is recognized as an inhabitant of the mouth of many normal individuals, where it leads a saprophytic existence. Until recently, the essayist said, observers have not been able to produce lobar pneumonia experimentally in animals, but within the last year Wadsworth has succeeded in producing the typical disease in rabbits by intratracheal injections of virulent pneumococci into animals which had previously been partially immunized. He said further that it is now generally conceded that in the vast majority of pneumonias, if not all, that pneumococci gain entrance into the circulating blood and set up a general infection. Tizzoni and Pacuchi have recently shown that pneumococci may circulate in the blood of immunized rabbits for weeks or months without perceptible harm to the animals. Resolution has been shown by Flexner to occur through autolysis of the exudate. Anti-pneumococcic serum, according to Rimpan and Neufeld, contains a substance which prepares pneumococci for phagocytosis.

Surgical Complications of Pneumonia.—Dr. John H. Gibbon said that of the surgical complications of pneumonia, empyema is the most common, and that the success of the surgical treatment depends largely upon early recognition. Confirmation of diagnosis is made by the exploring needle, which procedure should be carried out with as much care as any surgical opening of a clean healthy cavity. When pus is present the procedure must be followed by thorough drainage. Dr. Gibbon uses chloride of ethyl as an anesthetic, either alone, or as a precursor of ether. In practically every instance beyond the age of twenty he would do a superiosteal resection of the rib rather than simple drainage. Masses of lymph are removed by the fingers. There should be drainage tubes as large as the finger and they should be stitched in. The whole keynote of the treatment of empyema Dr. Gibbon believes to be the early and thorough evacuation of the pus, with the opening made as low down in the pleural cavity as possible. Another condition which is very common, he stated, is lung abscess; due to foreign bodies lodged in the bronchi, to tuberculosis, or to pneumonia. Of the three varieties, that due to pneumonia gives the best results from surgical treatment. The diagnosis in his opinion is attended with more difficulty than that of empyema. Drainage should be carried out exactly as in empyema. In the presence of adhesions between the lung and the chest wall, either of two courses may be followed: The protection of the healthy pleural cavity by gauze packs and immediate drainage of the abscess; or, the stitching of the lung to the parietal pleura, allowing the formation of adhesions before drainage.

Dr. John H. Musser, in opening the discussion, referred to a few points to which his attention had been especially called in his recent observation of pneumonia; first, to the cases simulating abdominal conditions. In deciding whether the condition was one of inflammation in the upper abdomen, or an infection above the diaphragm, attention to a few of the classical phenomena attendant upon each condition aided diagnosis. Of the greater importance were the phenomena attendant upon supradiaphragmatic cases. Here the rusty expectoration or the expiratory grunt was the most valuable sign of pneumococcic infection of the lung; or, the pulse and respiration ratio. Examination of the blood does not aid, because in both conditions there is leucocytosis. In differentiating between pneumonia and meningitis the presence or absence of the phenomena which attend meningitis was more helpful than that of pneumonic symptoms. The slow pulse, the rather slow respiration were among the phenomena indicative of meningeal trouble. In other instances violent hemorrhage at the onset of the disease suggested tuberculosis. The course of the disease offers more help than do the specific symptoms or laboratory signs. In still other instances delirium was so marked in the period of convalescence as to make the case atypical. This delirium, both in hospital and private patients, came on immediately after the crisis and raged violently for from three to five days or two weeks unattended by fever or undue change in pulse rate. The patients recovered without any unusual cerebral complications. In none of the instances had he seen empyema follow as a complication. In one case there was abscess of the lung. It should be remembered that empyema does not always lobulate at the base, the infection often being between the lobes. In the treatment of pneumococcic infection, Dr. Musser thinks it is a mistake to regard it as a self-limiting disease, believing that it

will run its course and the patient recover. While this may be true, no one can tell how quickly the simplest case may become gravely toxic.

Dr. John B. Roberts, in the discussion, said that the surgeon comes in contact with traumatic pneumonia, ether pneumonia, pneumonia due to cold from insufficient clothing (no-undershirt pneumonia) in patients in hospitals, croupous pneumonia, influenza pneumonia and septic pneumonia. It is often difficult to determine whether a given case is one of true croupous pneumonia or influenza pneumonia. He stated that in the incipient stage of inflammation of the lungs, which is shown by dulness on percussion, crepitant râles and rise in temperature, prompt and efficient dry cupping should be used. He never loses time by sending for a cupper, who would probably put on small glasses, but sends for large tumblers, and puts up half a dozen of them himself, by using small pieces of paper dipped in alcohol, to make the vacuum in the glasses. These are left on for half an hour or more, and followed usually by turpentine stupes. In sthenic cases of pneumonia, and particularly in pneumonia following gunshot or stab wounds of the lung, or injury of the lung from fractured ribs, venesection is often of great value. He is confident that he has prevented congestion of the lung becoming pneumonia by efficient dry cupping, and that he has also prevented disastrous results from acute pneumonia following injuries of the lung by phlebotomy. In cases with a great deal of mucus in the bronchial tubes he has seen life apparently saved by inverting the patient in order that gravity might act as a mechanical expectorant. The serous effusion in the pleura which occurs as a complication of pneumonia should be treated by prompt tapping. This may be done as well by the ordinary hydrocele trocar properly sterilized as with the complicated apparatus known as an aspirator. In empyema it is necessary to promptly evacuate the pus and lymph masses. This is easily done by putting the patient in the semi-recumbent posture, freezing the skin with ice and salt, and making a 2½ inch incision with a straight bistoury. It is never necessary to resect the rib in order to get room for evacuation and drainage; and he believes it better not to take the time for resection of the rib when the patient is in the serious condition for which operation is done. If it is found, after a lapse of some weeks, that the lung does not expand and the chest wall does not sink in to close the cavity, resection may be done with much greater safety to the patient than at the time of the original incision. Many cases will never need the rib resected; and even in young children, not over a year old, he has found it easy to get a finger between the ribs and to insert a drainage tube. The incision should be made with a quick thrust of the knife, just as one would open an abcess elsewhere. The wound should then be expanded with two fingers, to allow the pus to flow and the masses of lymph to escape. The latter may need to be hooked out with the finger tip. Two rubber drainage tubes placed side by side should be inserted and stitched to the skin, to keep them from falling out of the wound, and should each have a safety pin in the outer end, to avoid their being sucked into the chest, if the suture threads should cut through the skin unobserved by the physician. Abscess of the lung should be treated in a similar way by free incision and boring between the ribs with the finger to evacuate the pus. No resection of rib is needed here. Irrigation is not needed in cases of empyema, unless the temperature should subsequently show that the cavity has become septic from putrefactive germs. Then it should be washed out once or twice a day with a weak antiseptic solution, or with sterile salt solution. The temperature curve indicates when the intervals between the irrigations may be lengthened.

Dr. James Tyson said that no disease is more treacherous than pneumonia. There is no single treatment which may be said to be in any way curative, although there are measures which cooperate with whatever tendency nature has in the way of self-immunization, or in the way of elimination. He does not believe, however, that treatment is without effect and to be ignored. He emphasized the early and prompt use of dry cups after the manner described by Dr. Roberts, and repeated for a number of days. Certain cases are favorably influenced by the application of the ice bag to the inflamed lung. Where this method has seemed to be lacking in efficiency he thinks it due to the imperfect method of application. He is inclined to think that the best application of cold is by cloths wrung out of ice cold water and kept in place until they become warm. That the ice-cloths induce deep inspiration is an added advantage. They also reduce temperature. When the temperature drops to 100, he has the ice-cloths removed, to be reapplied if the temperature goes above this point. He has found good results to follow the use of creosotol in ten minim doses every four hours. This drug is less irritating than creosote and less dangerous of application. He believes the diagnosis of abscess of the lungs to be more difficult than Dr. Gibbon finds it. Dr. Tyson believes that cases of pneumonia associated with delirium are less apt to be fatal in their termination, although one would naturally think that delirium is an index of the severity of the toxin.

Dr. Judson Daland mentioned dilatation of the right ventricle as an important complication of croupous pneumonia. The use of venesection he finds of special importance. In no condition of the blood with which he is familiar is coaguability of the blood greater than in certain of these cases of croupous pneumonia. In this class of cases the use of alkaline water in large amounts to reduce the acidity of the urine is important. Certain cardiac stimulants are also valuable.

Dr. Frank Woodbury asked that the President speak upon the mode of entrance of the pneumococcus. He thinks possibly the upper air tract may occasionally be a source of entrance for the pneumococcus, though occasionally entrance is through the bronchial mucous membrane. He suggests the possibility that abnormal conditions of the nasal mucosa may afford entrance for the pneumococcus, and that the entrance into the blood from the upper air passags may give some of the atypical forms referred to by Dr. Wilson.

Dr. James M. Anders spoke especially with reference to the treatment of pneumonia, believing that attention should be directed to the limitation of the area of consolidation, to the assistance of nature in the elimination of toxins, and to the meeting of indications as they arise. He agreed with Dr. Musser that water is given too sparingly in pneumonia patients, and not sufficiently systematically. He emphasized especially the support and maintenance of the heart circulation. An important question is the decision of just when to aid the heart, and with what agents; whether to wait until the pulse tension

begins to fall off and the first sound of the heart becomes weak, or to give this aid before that period arrives. In Dr. Anders' experience, after an attack of heart failure in pneumonia toxemia increases, and death almost invariably is the result. On the other hand, when he has given cardiac tonics and stimulants sufficiently early failing circulation has been warded off. Strychnine he has found to be the best agent for this purpose. Nitroglycerin is another valuable remedy. He believes that the pneumococcus often makes its entrance through the upper air passages.

Dr. Githens referred to his experimental work in the injection of adrenalin chloride into animals. The chloride causes punctate hemorrhages throughout the lungs, and if the dose is too large, in a rabbit death is caused promptly by pulmonary edema. It has occurred to Dr. Githens that a similar effect may account for some of the bad results found in pneumonia.

Dr. Darlington, in closing, emphasized the value of the drinking of water in pneumonia. He had lobar pneumonia himself ten years ago, with six others, all of whom died. The other men had been accustomed to a different kind of drink, and it was impossible to get water into them. Dr. Darlington had taken water in great quantities in the course of the disease, and considered himself a monument to the value of the drinking of water in pneumonia. Quinine he gives in large doses, and the result of the remedy, in his opinion, depends upon the particular epidemic. Last year, he remarked, pneumonia was very fatal; this year the mortality was less. In reference to heart stimulants, Dr. Darlington observed that if the heart commences to fail it will go on to failure irrespective of the giving of a stimulant.

ILLINOIS STATE MEDICAL SOCIETY.

Fifty-fifth Annual Meeting, held at Rock Island, May 16, 17 and 18, 1905.

The President, William E. Quine, M.D., of Chicago, in the Chair.

The scientific work of the Society was divided into two sections, medical and surgical.

Medical Section.

The Optional Disease.—Dr. Heman Spalding, of Chicago, discussed the symptomatology and differential diagnosis of smallpox, and showed lantern slides made from photographs taken of patients at the Isolation Hospital, Chicago. He also quoted the statistics of the Chicago Department of Health, showing the incidents and death rate of the disease in vaccinated and unvaccinated persons, and described the methods of vaccination. He emphasized the exercise of caution in using virus which was efficient. Failure to obtain a take was usually due to inert virus, and sometimes to improper technic in vaccinating.

Pericarditis.—Dr. J. H. Bacon, of Cleveland, Ohio, discussed the clinical history of the various forms of pericarditis and described a new method of tapping the pericardium. A small trephine opening was made opposite the fifth intercostal space between the midsternal line and the left border of the sternum. The finger was inserted through this opening, adhesions were broken up, and the pericardium opened. In cases of purulent perdicarditis, to prevent infection of the sternum and a subsequent osteomyelitis, the posterior surface of the sternum was covered freely with ten per cent. iodoform paraffin or wax. He also suggested that in cases of adherent pericardium the patient's life often could be saved by making a similar opening and loosening the adhesions between the two layers of the pericardium in the same manner as uterine adhesions were liberated. He detailed experiments on dogs that were carried on by him, showing the feasibility of this procedure.

The Present Status of Serumtherapy.—Dr. E. R. Larned, of Chicago, defined what was meant by serumtherapy, and then classified the sera as used in medicine under (*a*) curative sera, and (*b*) diagnostic sera. Classification of sera as to efficacy, (*a*) those of demonstrated efficacy; (*b*) those whose value appeared probable, but remained to be proved, and (*c*) those whose efficacy was *nil*. He described the methods used in the elaboration of sera; and gave a brief outline of the present status of the following sera: (*a*) Those of demonstrated efficiency, antidiphtheritic, antitetanic, antiplague, antistreptococcic, and sera for exophthalmic goitre. (*b*) Those whose value appeared probable, but remained to be proved, as serum for hay fever, tuberculin, antityphoid, antirabic, antitubercle, and intivenine. (*c*) Those whose efficiency was *nil*, as antipneumococcic sera, antiscarlatinal sera, antidysenteric sera, antivarioloid sera, antitoxin for cerebrospinal meningitis, serum for rheumatism, serum for syphilis, serum for anthrax, cancer serum, and leprolin.

Scrofula.—Dr. Henry G. Anthony, of Chicago, stated that scrofula was a factor in dermatology, the importance of which was variously estimated chiefly because of the diversity of opinion which existed as to what was meant by the term. He emphasized the fact that scrofula was not tuberculosis. Children with tuberculosis of joints did not present the various lesions which occured in the eye and skin of scrofulous patients. It required nose and throat lesions to produce the clinical picture of scrofula. These nose and throat lesions were not tuberculosis, and the nasal and throat secretions did not contain the bacillus tuberculosis. Clinically and microscopically, the the disease was a pyogenic infection of the nose and throat. Tuberculosis readily developed on the pyogenic infections, but this could never be determined clinically, and that was the reason so many believed that the disease was tuberculous. When a chronic pyogenic infection of the nose and throat was present it spread to the ear, eye, skin, glands, and bronchial tubes. The eruption of the skin which ocurred from this spreading of pyogenic infection was impetigo, and not eczema, of which two varieties were mentioned, one of which was a vericella-like eruption. Eczema might occur in scrofula, but the cases which were usually called eczema were really impetigo. The author had observed that sweating of the hands and feet was an important symptom in the disease. Scrofuloderma was subcutaneous tuberculosis, and lichen scrofulosorum was a tuberculous toxemia occurring in all forms of tuberculosis. The severest of all cases were those in which the infection had extended to the bronchial tubes.

The Educational Treatment of Neurasthenics.—Charles D. Center, of Quincy, Ill., believed that cases of neurasthenia were increasing in number very rapidly. He showed that a rather definite percentage of the symptoms of a neurasthenic were illusory or hallucinatory in character, and also claimed that practically every phase had one symptom, complaint, apprehension, or fear, which predominated over all

the others. This one predominating symptom he called the chief obsession, and stated that when this was overcome or removed all lesser symptoms were either abated or were entirely relieved. A number of cases of neurasthenia from the practice of the writer were cited, giving the chief obsession in each case, and the educational means used to remove this obsession. Reference was made to the use of strychnine in these cases, and it was found that the majority were made worse by its administration. The author emphasized the need of getting hold of the mentality of each case of neurasthenia, believing that it was more essential to treat the mind than the body.

Late Hereditary Syphilis.—Dr. R. R. Campbell, of Chicago, stated that in establishing a diagnosis of hereditary syphilis there were three points known as the triad of syphilis, which had long been looked upon as of the greatest value. These were Hutchinson's teeth, interstitial keratitis, and a particular form of deafness. These points were considered in their order. He reported several cases of late hereditary syphilis gleaned from the literature, and others that had occurred in his own practice.

The Climatic Treatment of Tuberculosis, with Special Reference to Colorado.—Dr. Clarence L. Wheaton, of Chicago, spoke of the mortality from tuberculosis, and the period of life at which death occurred during the last census year. He alluded to the necessity for enforcing laws relating to hygienic and sanitary measures, the establishing of State sanatoria for the care of the tuberculous poor, etc. He referred to the success of the Ottawa tent colony in the treatment of this disease, and said the tuberculosis problem was to be solved at home, based upon a study of conditions in Colorado, Arizona and New Mexico. A knowledge of meteorological facts and climatic data was essential in prescribing climate.

Diet in Tubercluosis.—Miss Adelia Sater, of Ottawa, spoke on this subject, and, among other things, stated that the appetite was no reliable criterion as to the amount of food that might be taken and digested by the patient. Hygiene and diet were the foundation stones upon which might be constructed successful therapeutics in the cure of tuberculosis.

Indormescent Shocks.—Dr. Hugh T. Patrick, of Chicago, called them indormescent because they ordinarily occurred just as the patient was falling asleep. These shocks might be divided roughly into motor, sensory. Mild motor shocks, or simple starts, might be regarded as normal, but in some persons they reached a degree which was pathological, and in others attained a violence sufficient to make them worthy of medical consideration and special treatment. The sensory form might affect general sensation or the special senses. The manifestation occurred as a symptom of functional disease, and in the vast majority of cases was of no grave significance, although the shock was a most alarming sensation for the patient. Illustrative cases were cited, and treatment given.

The Glycosuria of Hepatic Insufficiency.—Dr. Alfred C. Croftan, of Chicago, spoke of the frequency of sugar excretion in functional disorders of the liver, and pointed out the dangers of treating a patient afflicted in this way as a diabetic. He detailed the causes, symptoms, and treatment of this variety of non-diabetic glycosuria.

The Practical Significance of Certain Symptoms in the Upper Abdomen.—Dr. J. F. Percy, of Galesburg, said that the overlooking in this region of the pathology on which these symptoms were based was one of the strange chapters in the history of diagnosis. The common symptoms were pain due to cholecystitis, ulcer of the stomach, and of the duodenum, together with the formation of gas due to inhibited peristalsis. Vomiting was also mentioned; but nausea was a more prominent symptom than the former. Bleeding was also to be noted as one of the symptoms. The significance of these could best be determined by percussion, palpation, and noting costal resistance, especially in the right side. Laboratory methods were of confirmatory value only. Alone they could not make the diagnosis. The periodicity of the attacks from ulcer of the stomach and the duodenum was insisted upon, as was also the fact that the cholecystitis or an ulcer of the stomach would account for many of the chronic lesions of the liver and the pancreas. Both of these facts were new to the literature of this great subject.

The Tuberculosis Problem in Illinois.—Dr. Homer M. Thomas, of Chicago, stated that the main factor in the solution of the tuberculosis problem in this State was to secure for patients an abundance of pure air. It was from the unpierced heights and limitless expanse of the tractless skies came the life-giving ozone. Its presence in the blood brought renewed life and vigor. The flagging forces of nature found in its subtle chemistry the antithesis of decay. The sodden skin, the halting step, the lustreless eye, the clouded brain, under its vitalizing influence were rejuvenated. Tuberculosis in Illinois concerned sources of impure air. These were mainly the home and the workshop. Tuberculosis was a house disease. It depended upon the home for implantation, growth, maturity and propagation. The house was the granary of the bacillus. Houses of one kind and another were the ordinary means of spreading the disease. The house was the most frequent means, and the workshop next. This was so because it took prolonged intimate contact with a person, place, or thing that had been intensely contaminated with tuberculosis matter to give rise to implantation. Probably three-fourths of all cases of the disease conveyed from person to person were contracted in the home, and one-fourth through the workshop and environment. Homes should be made clean, dry, airy and bright. Buildings in which men and women were employed should be made sanitary, and should have a correct standard of air supply and light. The highest conception of medical science to-day was in preventive medicine. The Illinois State Medical Society had taken upon itself the advancement of this great work by establishing the Ottawa tent colony.

Parenchymatous Keratitis, Iridochoroidal Form, with Loss of Both Eyes.—Dr. Charles H. Probst, of Peoria, read a paper with this title, in which he stated that if iridectomy was to accomplish anything it should be performed early in the disease, before iridic adhesions had taken place, or before an advanced iridochoroiditis had a chance to develop. On several occasions he had performed iridectomy in the very beginning of the iridochorodial from of parenchymatous keratitis, with excellent results. In summing up the case he reported there were several interesting features relating to it, which were subnormal temperature from 1 to 1.5° F., and a very slow pulse. The therapeutic agents which were administered per mouth, such as salicylates, mercury, and potassium idodide, exerted no influence on the disease whatever. Subconjunctival injections of mercury and salt solutions had no beneficial effect on the eye until after the constitutional results of mercury

had been attained by deep hypodermic injections. There was a sudden development of a secondary glaucoma after the eye had been doing well for six months. Destruction of both eyes, four years apart, occurred in a similar way. While the history and all other symptoms were negative, he thought the case was undoubtedly one of hereditary syphilis.

Mixed Infection in Consumption.—Dr. Ethan A. Gray, of Chicago, spoke of the necessity of recognizing the presence of more than one infection in pulmonary tuberculosis. Secondary or so-called mixed infections were the chief agencies in producing the symptom-complex, consumption. As to the course of mixed infection, there was danger of mistaking it for grippe, malaria, colds, etc. Occasionally pleurisy and broncho-pneumonia were expressions of mixed infection. Hemorrhage from eroded arteries was a factor in spreading infection. A diazo-reaction did not always mean a fatal prognosis. Treatment should be largely hygienic and climatic but this was uncertain as far as checking the toxemia was concerned. He spoke of the value of streptolytic serum; amount administered, 10 c.c. daily, for six days; treatment was then discontinued until reaction had passed. Usually cough and expectoration would be diminished to a minimum, sometimes altogether. The phenomena of reaction were pointed out, postreactive findings were few or no bacteria. There was diminution in tubercle bacilli unless sputum was greatly concentrated; normal pulse and temperature. Severe cases only approximated the normal. Serum did not cure tuberculosis, but only cleared out bacteria and their toxins, leaving a better field in which to fight the tubercle bacillus. Seven cases were cited, in all of which the septic fever was materially influenced. In once case of advanced consumption fever was reduced from 103° to 99.5° F.; appetite and sleep returned, cough diminished, and expectoration as well. One case died without fever or expectoration three weeks after treatment was finishd. Five cases showed marked improvement with return to normal temperatures and better general condition.

The License and Control of the Practice of Medicine in Illinois.—Dr. George W. Webster, of Chicago, said that during the session of the Forty-third General Assembly a bill was introduced, creating a board of examiners. Owing chiefly to want of harmonious action on the part of the legislative committee of the State Medical Society, it failed to become a law. At the present time the chief functions of the Illinois State Board of Health were the general supervision of all sanitary and public health matters, and quarantine in the State, the examining and licensing of physicians and of other practitioners, the licensing of embalmers, the licensing of midwives, the inspection of lodging-houses in all cities of one hundred thousand inbatitants and over in the State. The board established a schedule of minimum requirements for medical colleges, making a high school education the preliminary entrance requirement, prescribed the length of the term, which must be not less than seven months, no two courses to be given in the same calendar year of time, prescribed the minimum number of hours of instruction in each term, the studies of the curriculum, the character of the college equipment, and all those colleges complying strictly with these rules were considered in good standing with the board. This simply admitted them to the examination. If their credentials were found satisfactory, and if they possessed a diploma from a recognized school and sustained a satisfactory examination before the Board, they were then licened. The "other practitioners" referred to were mostly osteopaths, and this term referred to the licensing of all those who treated human aliments without the use of drugs, or by mechanical appliances.

Some Phases of Disordered Metabolism in Nephritis.—Dr. Ralph W. Webster, of Chicago, said that nephritis was primarily a constitutional disease, with secondary manifestations in the kidney. The close relationship between the findings in the so-called febrile albuminaria, and those in typical nephritis were so marked that a common constitutional condition in each must be granted. All of the causative factors of nephritis produced metabolic disturbances which resulted in the production of toxins, irritant poisons, changes in the properties of the blood, both physical and chemical, and various other pathological abnormalities, which, in themselves, caused irritative and later inflammatory lesions in the kidney resulting in nephritis. A large number of metabolic changes might be directly traceable to the nephritis itself. In this paper the author discussed only the points of chloride retention, edema and urēmia. The retention of chlorides in nephritis was granted, but its relation to edema seemed to the author still debatable inasmuch as present knowledge regarding the pathology of albuminaria and of edema was not sufficient to warrant the ascribing of a specific influence to the chlorides in edema, over and above that of other salts. A discussion of the relation of chloride intake to increased albuminaria was given, in which the author concluded that in this connection NaCl may act as a specific. Concerning the theories of edema, those of Cohnheim, Kövesi and Roth-Schulz and von Koranyi received attention. The author showed the importance of osmotic changes in the production of this symptom of nephritis. The relation of the amount of water taken in had double importance in increasing a hydremia and in increasing the work of the heart. With regard to the uremia, it seemed that one must at present accept the idea of Senator and assume that this condition is purely a group of symptoms brought about through disordered metabolism as a result of lesions in an insufficient kidney, which lesions had, in their turn, been caused by attempts on the part of the kidney to eliminate products of an abnormal metabolism, the result of a specific or non-specific toxemia.

Ocular Manifestations of Chronic Nephritis.—Dr. Leigh E. Schwarz, of Chicago, read a paper in which he drew the following conclusions: (1) An ophthalmological examination should be made in all cases where nephritis existed or was suspected. (2) The non-existence of nephritis must not be inferred because visual disturbance is absent. (3) Ocular manifestations were invaluable where nephritis without albumin existed. (4) The severity of the renal symptoms did not influence those of the eye. (5) Retinal changes might occur before any definite clinical symptoms of nephritis developed. (6) Unilateral retinitis gave a relatively hopeful prognosis. (7) Retinitis might be the first indication of nephritis even in the later stage. (8) Prognostic value of the hemmorrhagic type was not greater than that of other forms of albuminuric retinitis.

Medical Treatment of Nephritis.—Dr. Arthur R. Elliott, of Chicago, presented the subject in the following practical order: (1) Treatment of chronic nephritis without dropsy; (2) treatment of chronic nephritis with dropsy; and (3) treatment of uremia. After discussing the subject at great length under the above heads, the author closed by saying that there was no room for pessimism in our attitude toward this

disease, and while obviously there was no remarkable cure to be performed by any mode of treatment, careful regulation of the life, and attention to little details, would secure results which were unsurpassed in any of the chronic dystrophies. The two most important indications were to protect the patient from intercurrent acute disturbance and maintain the compensatory adjustment in the circulation.

Ideals and Practices of the Medical Profession.—This was the title of the President's Address, delivered by Dr. William E. Quine, of Chicago. He stated that standards differed in different societies and even under different conditions in the same society. It was a fact of familiar knowledge that offences committed by physicians against the public conscience might be easily tolerated by their own organizations; but offenses against the technical standards of the organizations themselves, although quite unnoticed by the community at large, were liable to severe and lasting penalties, especially is the culprit be of humble rank and without friends. Among misdemeanors of this kind he mentioned advertising in the public prints; the exploitation of remarkable cures and operations; the holding of patents on articles used in the practice of medicine; the pretense of possessing an infallible law of cure; and the acceptance by physicians of commissions on their prescriptions, or on needed appliances which they were instrumental in selling, or on the fees of surgeons received for operations on the physician's patients. Such acts were always small and surreptitiousness made them mean; but he failed to see in them convincing proof of gross moral obliquity. Most of them were quite compatible with honorable standing in the community; and yet they were stigmatized, and properly so, by the unanimous vote of the organized profession—and, hence, were subject to penalty within the organization and profession itself. On the other hand, when physicians violated the public's standards of morality and thereby brought upon themselves public disrepute, their professional standing might be saved from challenge in medical organizations. Such discrimination was neither creditable nor defensible. A life sentence of ostracism should never be inflicted for mere technical transgressions, nor for any others except such as constitute *prima facie* evidence of depravity of heart.

What We Must Learn and Unlearn in the Treatment of Tuberculosis.—This was the title of the address in medicine delivered by Dr. J. W. Pettit, of Ottawa. The author said it was now a well-established fact that climate was an unimportant factor in the treatment of tuberculosis. Because the medical profession had learned the utter futility of drugs in the treatment of this disease, their responsibility had not ceased. Physicians should guide patients when they do not treat them. A mistake had been made in regarding fresh air as the *sine qua non* in the treatment of tuberculosis. Nutritious food, regular rest and exercise were each of essential importance. There was much to be learned in regard to the housing of tuberculosis patients. As to the use of tents, it had been demonstrated that the tent was practicable in cold climates. It fulfilled the conditions most perfectly from a scientific standpoint. A practical point essential to success was the importance of an early diagnosis in this disease.

The following papers were also read and discussed: "Air Examinations, Importance and Results," by Dr. Adolph Gehrman, of Chicago; "Typhoid Fever," by Dr. G. G. Craig, of Rock Island; "Cases of Erysipelas Treated with Marsh Purslane," by Dr. H. C. Mitchell, of Carbondale; "Respiratory Oxidation Stimulants in Nephritis, Pulmonary Dyspneic and Allied Crises,' by Dr. George F. Butler, of Chicago; "Syphilitic Meningitis in Children," by Dr. William J. Butler, of Chicago.

Surgical Section.

Surgery of the Stomach.—Dr. Arthur Dean Bevan, of Chicago, said that stomach surgery to-day stood out as the most gratifying surgical field in the process of rapid development. This fact was perfectly patent that the demonstrated value of surgical procedures in treating stomach lesions waranted a much wider application of such methods than were at present practiced. His plea was that the cases must be carefully selected, and the surgeon must be sure that an operation was strongly indicated. Cases that could be cured by a summer's outing or by carefully selected diet should not be operated upon; nor should hopeless cases be operated. He discussed the surgery of the stomach under two head: (1) Surgical treatment of carcinoma of the stomach, and (2) the surgical treatment of ulcer and its complications and sequelæ. If cases of chronic carcinoma of the stomach were early diagnosed and operated upon at a time when the entire focus of disease could be removed, a cure could be effected. As to stomach ulcer, when intelligent medical treatment failed and the symptoms returned and persisted, then and not until then did the uncomplicated stomach ulcer become a surgical problem. The great majority of cases of perforation of the stomach by ulcer could be saved by early surgical interference. The surgery of the stomach was advancing. The profession should keep pace with it and give the patient the benefiits of its demonstrated possibilities.

Dr. Carl E. Black, of Jacksonville, discussed the surgery of the bile tracts; while Dr. Emerson M. Sutton, of Peoria, discussed the possibilities of surgery of the duodenum.

Dr. M. L. Harris, of Chicago, spoke of the surgical treatment of injuries to the spleen due to subcutaneous penetrating wounds; the value of splenectomy in certain anemias associated with enlargements of the spleen.

Surgical Tuberculosis.—Dr. William E. Guthrie, of Bloomington, in discussing this subject, said that while phyisicians should study how to help tuberculosis patients by the proper removal of diseased tissues, they should not forget that vastly more necessary was the conservation of the power of resistance of the patient to disease through suitable hygiene and forced feeding. He who would treat tuberculosis in any form successfully must have for his watchword ever, "Feed, feed, feed."

Tuberculous Nephritis.—Dr. Robert Christie, of Quincy, reviewed the literature with reference to comparative frequency, and alluded to the more recent investigations and observations, discussing the modes of infection, primary, secondary, metastatic atypical cases, without characteristic symptoms, other than localized tumefaction. He reported a case in which he did a primary abdominal nephrectomy, followed by recovery of the patient.

Errors in the Diagnosis of Abdominal Troubles.—Dr. Clifford U. Collins, of Peoria, said that perfection in diagnosis marked the highest development in science and medicine. With a correct diagnosis it was not hard to institute the proper treatment. The development of diagnosis had been a difficult process marked by many errors. While one was endeavoring to approach perfection in diagnosis, it was highly probable that errors would always be made. Although errors

were annoying, each one conveyed a lesson, and, if studied and interpreted correctly, would result in much good to the examiner. The keeping of complete case records would permit of close and careful study of each error and lead to success, because "Success does not consist in not making any mitakes, but in not making the same mistake twice."

Congenital Clubfoot.—Drs. John Ridlon and Charles E. Eikenbary, of Chicago, contributed a joint paper, in which they briefly discussed the varieties of congenital clubfoot; also the anatomy of congenital equinovarus and the theories of its causation. The paper chiefly discussed the subject of treatment by manipulation, by braces, by the Thomas wrench, by hand modeling, with the patient anesthetized, by the Granton osteoclast, by simple tenotomies supplemented by modeling, or the use of the wrench, or the osteoclast by the Phelps open incision and Jonas' modification of it, and by linear and cuneiform osteotomies, and enucleation of the astragulus. The methods of after-treatment by plaster splints and by braces were briefly considered and the statistics of Dr. Ridlon's cases for the past twelve years were given.

Stricture of Esophagus Following Typhoid Fever.—Dr. S. C. Plummer, of Chicago, reported a case of stricture of the esophagus following typhoid fever. The case was one of typhoid fever with severe relapse, symptoms of stricture immediately following. The patient was treated by sound. There was gradual tightening until swallowing even of water was impossible. Under anesthesia an unsuccessful attempt was made to pass the stricture. A gastronomy was performed; there was relaxation of the stricture after four months of absolute closure. Dilation of the stricture was resorted to, and an operation made for closure of the gastric fistula.

Colloid Carcinoma of Cecum.—Dr. Plummer reported this case, in which an operation was performed for appendicitis three years previously. Excision of the cecum and ascending colon was done, with lateral anastomosis by Murphy button of the ileum to the transverse colon. There was recovery from the operation, with restoration of health, followed by recurrence.

Penetrating Wound of Liver.—In this case Dr. Plummer said the injury was produced by a small missile, a portion of a dynamite cap. Laparotomy was done, but the foreign body not found. It was evidently embedded in the liver. The liver wound was closed, and patient recovered without complications.

Gastro-Enteroptosis.—This patient had symptoms simulating appendicitis. The transverse colon was found in the shape of a letter V. The gastrohepatic omentum was abnormally long. The gastrohepatic omentum and transverse mesocolon were each folded upon itself and stitched, followed by permanent relief of the symptoms.

Dr. Fernand Henrotin, of Chicago, made some remarks concerning when and how to treat septic pelvic affections of women by vaginal incision and drainage.

Diagnosis and Pathology of Neoplasms of the Brain.—Dr. Hugh T. Patrick, of Chicago, in discussing the pathology, said that the most frequent tumors were glioma, carcoma and solitary tubercle. He enumerated the less frequent forms. Structure, the manner of growth, and the physical properties of more frequent tumors were pointed out. As to diagnosis, the determination of intracranial neoplasms was generally easy. Exact localization was generally difficult, frequently impossible. He mentioned the classical symptoms of brain tumor and the points of differential diagnosis. Tumor might simulate apoplexy. General paresis, arteriosclerosis, nephritis, migraine, etc., were discussed in connection with brain tumors; also the symptoms indicating the seat of growth.

Insanity Following Skull Injuries.—Dr. E. Mammen, of Bloomington, spoke of contusions, concussions, location of injuries, fractures, and symptoms following skull injuries. The symptoms were sometimes slow in development. He spoke of the changes in tissue at the site of injury, also operation, relief from pressure, relief by the removal of changed tissues and of cirrhotic bone. He cited cases and gave the results.

Cerebral Infection from Middle-Ear Disease.—Dr. Norval H. Pierce, of Chicago, referred to the anatomical paths by which suppurations within the temporal bone reached the contents of the calvarium. He discussed the character of the primary inflammations which produced intracranial complications, as well as the influence of locality of the primary inflammations on the different intracranial complications. Purulent inflammations of the dura and the extradural abscess were discussed. He referred to meningitis and meningo-encephalitis serosa following suppurations within the temporal bone; also to phlebitis and thrombosis of the dural sinuses and the jugular vein. Reference was made to isolated thrombosos of the jugular bulb, also to otitis brain abscess.

Prophylaxis of Syphilis.—Dr. Alfred Schalek, of Chicago, said there was renewed activity in this direction among the medical profession in recent times. The reasons were not an increase in the number of cases, nor a more severe course of the disease, but better statistics, and the present improved prophylactic measures against other infective diseases. The spread of syphilis could be limited by means which applied to the general public and the individual. The former included control of prostitution, but had proven a failure. Impracticable also was the suggested cumpulsory report of cases by physicians. A better measure was the education of the public as to the nature of the disease. Instructions should be given how to avoid infection innocently. He made a plea for increased facilities for treatment in hospitals and dispensaries. The author thought that at the present time the most valuable prophylaxis against syphilis ought to be practiced by the medical profession in their relations with their patients. Since no methods were known to abort the disease after infection occurred, the most important duty was a thorough treatment.

Some Cases Demanding Removal of the Eye of Interest to the Physician and Surgeon.—Dr. J. Brown Loring, of Chicago, discussed the responsibility resting on the physician and surgeon, as well as the ophthalmologist, with regard to the treatment of blind eyes. Reports were given of three cases of sarcoma, one of glioma, and five of iridocyclitis of various origin, causing or threatening sympathetic ophthalmia. The first four cases indicated danger to life, the others danger to sight. Statistics were given as to the frequency of sympathetic ophthalmia. Attention was called to the unsatisfactory and at times contradictory manner in which the subject of treating eyes blind from iridocyclitis was discussed in modern textbooks. A plea was made for a more radical treatment of these cases from every standpoint.

The Commerce of Surgery.—Dr. Fernand Henrotin, of Chicago, in selecting this subject for his address, said he did not wish to apologize for the prevailing forms of commercialism which tended to degrade the medical profession. He spoke for the future, and bespoke an unbiased, calm decision upon the best methods of eradicating or minimizing existing evils.

A considerable part of these might rightly be attributed to the course of life of the very men who condemned them so strenuously. In the keen competition of the battle of life they had forgotten that the ethical function equity should be supplemented by kindness; omission and lack of perception, not commission. Within the bounds of law they had lost sight of negative beneficence. They had often begun by being commercial until beyond want, and now they were moralists. They held more positions than they could fill satisfactorily; they performed more operations than they could do full justice to, or overlooked the care of. They often opposed the rise of their peers and particularly their superiors on their faculties; they boasted of their large fees and their annual income, exciting the cupidity of their fellows, all of which was properly within the law, but was an element in the development of present conditions. Add to that the elements which he had shown and one would have the reason for commercialism. All of this writing was a plea for the exercise of negative beneficence on the part of the profession in regard to this whole question. While proven violations of the law of ethical conduct should be given publicity and be visited by just penalty, wholesome denunciations should be decently omitted as tending to disorganize the ranks and doing injury to men whose mistakes had resulted from force of circumstances and surroundings and the strenuousness of the age they lived in. Let those who were successful make it their duty to help others to a firm footing beyond the need of dubious methods. To eradicate impure commercialism entirely might be impossible, as it was founded on man's inheritance of original sin, and because reasonable commercialism and was an incentive in life, but it was not impossible by harmonious cooperation to cultivate a desire for a higher standard by combining justice and beneficence. The practice of self-restraint and renunciation was not happiness, though it might be something better.

Dr. George E. Stambaugh, of Chicago, discussed the indications for opening the mastoid process in cases of acute empyema of the cells when there was an absence of signs over the external surface of the mastoid.

Dr. L. H. Nickerson, of Quincy, followed with a paper in which he discussed the diagnosis and treatment of laceration of the vaginal portion of the uterus and fornix vaginæ.

Immediate Diagnosis and Treatment of Lacerations of the Vagina and Pelvic Floor and Perineum.—Dr. C. S. Bacon, of Chicago, classified tears as external and internal. In both there were many grades, and either might be simple or combined with those of the other class. Diagnosis concerned both the finding of these lacerations and determining their extent and importance. Both touch and inspection were employed. The pain caused could be disregarded, but the risk of infection was considerable and should be carefully considered. Hirst's proposed delay of all examination and operation till the end of a week was not practicable, and the author favored immediate examination and repair, but only with as careful asepsis as would be employed in a secondary operation. In a non-operative labor, when there was no hemorrhage with the expulsion of the head, and no severe external tear, there would be no internal laceration, and an internal examination was unnecessary. Hemorrhage was rarely an indication for operation in vaginal and perineal tears. The bad results of unrepaired lacerations were generally the reasons for operation. Spontaneous repair was a delusion. Proper preparation was very important in all repair operations. Especial attention should be given to vaginal lacerations that involved the pelvic diaphragm and extended into the central attachments of the accessory diaphragm, but did not implicate the skin surface. Here the skin bridge might be cut and the repair made as in a combined vaginal and perineal laceration, or the internal suture could be applied so as to bring in apposition the divided structures. The perineal sutures of silkworm-gut must not be tied too tightly. In a complete rupture the method of restoring the rectal tube by passing the suture through the rectal mucous membrane was preferred to the passing of the suture from the perineal side. The author preferred cutting the ends of the perineal sutures short, and discarded powders. Catheterization was unnecessary. A wide occlusive dressing, fastened by the four corners to the abdominal bandage was much better than the ordinary dressing held by the T bandage. Chief stress was laid on attention to details in preparation for the technic of operation, without which poor results and total failures furnished grounds for discarding immediate operations.

Pelvic Infections in Women.—Dr. T. J. Watkins, of Chicago, said that pelvic infection was preferable to pelvic inflammation as a name to designate the disease, as infection injured and destroyed tissues, whereas inflammation tended to conserve tissue. The author limited his paper to a discussion of some of the practical points of pelvic infections. He spoke of the importance of the disease, and said that the same principles were involved in pelvic infections as in infections in other parts of the body. He considered the etiology, pathology, symptomatology, diagnosis, prognosis and treatment. The importance of prophylaxis was pointed out. Topical applications were often of little or no value. Conservatism during the acute stage was of great importance. Spontaneous and complete recoveries sometimes ensued.

Bronchoscopy for the Removal of Foreign Bodies from the Lung.—Dr. E. Fletcher Ingals, of Chicago, mentioned previously reported cases, and the removal of foreign bodies by the upper and lower routes. He described the instruments used in removing these bodies, with illumination by electric lamps, as in urethroscopy. There was danger when the tube was introduced into the bronchus of the affected side, owing to the fact that it might shut off the air from the other lung. He spoke of the use of a small opening in the tube to keep the tube free from pus and mucus. He reported recent cases, and exhibited an emergency device for removing foreign bodies.

Dr. James W. Twitchell, of Belleville, reported a case in which recovery occurred following a perforated wound of the intestine without surgical interference.

The following papers were also read and discussed: "The Value and Place of Duodencholedochotomy in Gall-Stone Surgery," by Dr. John C. Hancock, of Dubuque, Iowa; "Inversion of the Uterus, with Report of Cases," by Dr. P. L. Markley, of Rockford; "Pathology and Diagnosis of the Lesions of the Spinal Cord and Peripheral Nerves," by Dr. Frank P. Norbury, of Jacksonville; "Malignancy in Uterine Myomata," by Dr. Henry F. Lewis, of Chicago.

Officers.—The following officers were elected for the ensuing year: President, Dr. H. C. Mitchell, Carbondale; First Vice-President, Dr. W. K. Newcomb, Champaign; Second Vice-President, Dr. M. S. Marcy, of Peoria; Secretary, Dr. E. W. Weis, Ottawa, re-elected; Treasurer, Dr. E. J. Brown, Decatur, re-elected. Springfield was selected as the place for holding the next annual meeting.

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ORIGINAL ARTICLES.

THE PROGNOSIS IN SYPHILIS.[1]

BY R. W. TAYLOR, M.D.,

OF NEW YORK.

WHEN a patient has been informed that he is syphilitic he immediately begins to question the surgeon as to his chances in the future. He will inquire anxiously whether he can be thoroughly cured; how long it will take to cure him; will he suffer very much? Will he be as good as he was before he was infected? Can he ever entertain the thought of marriage, and will his children be healthy?

These momentous questions reveal to us the necessity of a thorough knowledge of the prognosis of syphilis. It is therefore important at first to determine what the nature of syphilis is, and from our studies and observations to acquaint ourselves with the course of the infection in healthy and diseased subjects, and of the influence of therapeutics upon this infection.

Syphilis is a chronic infectious granulation tissue disease caused by a specific poison, the nature of which is doubtful, being considered by some (Max Schuller) a protozoa, and by others (Max Joseph Piorkowski and others) a specific bacillus. The first evidence of syphilitic infection is the chancre, which was derived from a previous syphilitic. This chancre shows that the poison penetrates the epithelium, works its way to the blood vessels, infects the perivascular spaces and involves the inguinal ganglia.

The process of syphilitic infection is one of constant growth and diffusion from the beginning. In the very first days of the existence of the chancre the poison is deeply rooted in the subcutaneous tissue; it is in a most active state and progresses along the course of the vessels until it reaches the body, and then infects the whole economy. Reasoning by analogy, we are warranted in assuming that this new, highly infectious and rapidly growing tissue gives off, probably by means of its microbes, a poison which diffuses itself through the system. We have then in syphilitic infection two orders of morbid changes: (1) The heterologous new cells; (2) the diffusible poison.

In many diseases of microbic origin the severity of the attack depends upon the activity and the quantity of the virus inoculated or received. When the microbes are derived from active and exuberant lesions they usually produce an intense disease in vulnerable subjects, but when the virus is attenuated, or when the microbes are in a weakly state (involution forms), then the resulting invasion is less severe. To these features offered by other infectious processes syphilis does not seem to present points of resemblance. In other words, we know nothing of the mildness or malignancy of the syphilitic virus, and extended clinical observations made by many authorities go to show that a virus which produces severe syphilis in one individual may produce only a mild form of the disease in another. Therefore, in syphilis it may be said, without fear of contradiction, that the potentiality of the poisonous dose is about the same whether it be derived from a severe case of syphilis, or from a mild one. For example: Many years ago I had under my care a very strong young man who had a small and insignificant chancrous erosion on the penis. This man, in whom the secondary stage was very mild, contaminated a rather anemic young woman who developed a well-defined vulvar chancre in which there was a slight tendency to sloughing. This woman was attacked by the malignant form of syphilis which resisted intelligent treatment and careful nursing, and she died six months after infection. While she was in a very debilitated state, just before the onset of the malignancy which terminated her life, she had connection with four young men and infected them all with syphilis. Three of these individuals had mild secondary syphilis, and in only one was the disease somewhat severe. In all four patients the initial lesion was small and not much indurated. My belief on this question is in accord with the opinions of many authorities. Clinical observation has also proved that the potency of the virus is about the same whether it be derived from the initial lesion, a secondary lesion, or the blood.

From the foregoing statement of facts it seems warrantable to conclude that there is a well-marked uniformity in the infectious quality of the virus, no matter from whom it may be derived, and that this poison may produce in some subjects a mild and in others a severe form of syphilis. It, therefore, logically follows from what has been stated that the benignity or severity of syphils is determined by the condition of the individual.

Clinical observation clearly shows that in some patients, owing to partial immunity, the syphilitic poison meets with such resistance on the part of the tissues that it makes but a slight impression, while in others a marked susceptibility to its action exists, and a more or less severe form of the disease is produced. It has been claimed that from certain features observed in the chancre and during its course we may draw prognostic criteria as to the mildness or severity of the subsequent course of the disease. It has been said

[1] Read before the New York Academy of Medicine at a Symposium on Syphilis, May 4, 1905.

that a small, slightly indurated chancre is usually followed by a mild attack of syphilis. This statement may apply to some cases, but certainly not to the majority. It is not uncommon to see all grades of severe syphilis follow an insignificant initial lesion which might have undergone involution in ten days or two weeks, and have left little if any trace upon the part attacked. How common it is to see severe and extensive syphilitic lesions in persons who never knew that they had a chancre, and in whom it must have been very small. The truth is that both mild and severe grades of syphilis may follow small initial lesions.

It has also been claimed that large and deep primary lesions invariably lead to severe forms of infection, but this statement is only partially true. I have seen many cases of mild syphilis follow a very extensive chancre, and have also seen instances in which two or three parts of the body were the seat of chancres (penis, lip and finger, or penis and lip, or other part), and yet the course of the disease was not at all severe.

Ulceration, phagedena and gangrene, attacking the initial lesion, have been claimed to be ominous signs of a severe attack of syphilis. Extended clinical observation shows that his assumption is not fully warranted. Destructive ulceration of any form or gangrene attacking the initial lesion is always the result of contamination with pyogenic microbes, usually caused by carelessness and uncleanliness, and also by intemperate cauterization, and they are to be regarded as disquieting accidents, and not as indices of the malignancy of the initial lesion or as forecasting a severe attack of syphilis. In some cases of phagedena and ulceration of the initial lesion a temporary condition of ill health is produced, but careful treatment will soon remove this accidental complication.

It is also claimed by some authors that extragenital chancres are the forerunners of severe syphilis. This view is certainly based on the observation of a few exceptional cases, and is not borne out by extended investigation. I have reached the conclusion, from the statistics offered in over one hundred cases observed and recorded by me, that the course of syphilis averages about the same in cases beginning in genital or extragenital lesions. It not infrequently happens that the nature of an extragenital chancre is not recognized or that it runs its course unobserved by the patient. In such cases the resulting syphilis may not be treated, or it may be improperly treated, and then a degree of severity may result. This view of the malignity of extragenital chancres is in some instances due to the hue and cry raised by infected medical men and nurses who, having innocently contracted the disease, take kindly to the mild form of martyrdom with its resulting sympathy from friends and acquaintances. They usually exaggerate their symptoms and give the impression that they are suffering from a severe form of syphilis.

Fortunately for the human race, syphilis in the great majority of cases is contracted by young men between twenty and forty years of age, in whom the vital processes are active and whose health as a rule is good. Such patients are naturally capable of withstanding attacks of various diseases, but some are more resistant than others. According to my observations, it may be said that syphilis is much less severe to-day than it was thirty years ago. This diminution in the severity of the disease is largely due to our improved methods of treatment, to better sanitary and nutritive conditions, and to the greater attention which is paid to cleanliness and antisepsis. But further than this, there undoubtedly exists to-day in the tissues of many individuals a greater resistance to syphilitic infection than was possessed years ago. In other words, in many people a moderate condition of immunity against syphilis exists, which is due to the changes in the tissues and in the blood induced by syphilis in their more or less remote ancestors.

In a general way it may be stated that the large number of persons who contract syphilis are those who are in average good health and have not grown old. In a smaller number the standard of health is less high, and in many patients certain morbid conditions exist which are due either to disease or bad habits, and which lower their power of resistance. Extended clinical observation shows very clearly that syphilis when untreated by mercurials runs a somewhat uniform course. Following the chancre, in due time the secondary cutaneous and mucous membrane manifestations appear, and remain for a short or long period, and then they seemingly undergo resolution. Next a more advanced form of lesions, such as large papules or papulo-tubercles, are observed, and these may in time wither and later on—in months or years—true tertiary lesions may develop.

Syphilis in healthy persons, male and female as a rule, runs a mild course, and its poison is eliminated from the system if active treatment is instituted at the proper time. Much depends upon the intelligence and docility of the patient who, if he enjoys ordinary good health and will follow up energetic, but very carefully directed treatment, may, I am confident, be cured. This comforting assurance may be given to the majority of patients seen in private practice, who in general, are intelligent, realize the gravity of their condition, and resolve to so conduct themselves and regulate their habits that their vital processes can resist the depressing influences of the syphilitic poison and be able to undergo the strain put upon them by long-continued medication. Many years' study and observation of the nature and treatment of syphilis has convinced me that in most cases a cure is possible, whereas in years gone by, we groped in ignorance, pursued faulty, and even harmful, therapeutic methods, and never felt ourselves masters of this insidious and far-reaching infection.

This vigorous and intelligent treatment more or less promptly influences and attenuates the virulent infection, which will gradually subside, and in most cases in previously healthy persons a cure will result within two or three years, and in some exceptional cases sooner. The mercury destroys the newly formed and nascent cells, and as they die so does their poisonous power wane. In many cases we see no visible lesions or very simple ones after the first rash. Cases thus treated may be called mild, and in private practice it is the rule, when patients are intelligent and docile, and submit fully to treatment, to see this benign course of syphilis. Such cases may, therefore, be taken as the standard of comparison with other forms of syphilis now to be considered.

There are many persons who, though not absolutely sick, are not really well. In this category are included cases of anemia, flabby and poorly nourished individuals, blonds with light reddish hair, persons suffering with malnutrition, and even those who are mildly neurasthenic. In America syphilis in women runs about the same course that it does in men, but the female sex is much less frequently attacked by cerebral and cerebrospinal affections than are men. Women as a rule are less addicted to alcoholics than males, and they are not called upon to overtax the brain as many men are, consequently they present rather infrequently evidences of specific nervous affections.

Syphilis in the poor and ignorant is mild or severe, and sometimes malignant in its course. Perhaps the greatest of all drawbacks in the treatment of syphilis in the poor is the difficulty of establishing in their minds a realizing sense of the gravity of the affection. Consequently, it is in these individuals that we so often see the disease run a chronic and severe course. They are careless in following treatment, and as a rule cannot be induced to remain under medical care any length of time after the disappearance of their specific lesions or the cessation of the discomforts. This is the keynote to the severity and malignancy of syphilis among the lower orders of our population. Then again, many poor people are addicted to alcoholics, which act harmfully upon them and render the course of syphilis severe and protracted.

Severe forms of syphilis are observed in varying grades of intensity. As a rule, the secondary lesions are numerous and distributed symmetrically over the whole body, and the influence of the specific poison is severe (neuralgias, headaches, joint bone, and muscular pains, etc.). One rash runs an indolent course and is soon followed by one of more severity which becomes complicated with pyogenic infection, and thus we come to see ecthyma, impetigo, and variolaform syphilides and rupia. In these cases there is more or less prostration and little reparative tendency, while in very severe cases fever, sometimes head symptoms, great emaciation, and even marasmus may exist. Then again, in unhealthy persons, particularly in the lower orders, we may observe what is called precocious malignant syphilis, which is an entirely different condition from true malignant syphilis. Precocious malignant syphilis is noteworthy for the reason that it usually begins in the severer forms of the disease in which ulceration attacks the various lesions. Then while these degenerating secondary lesions are appearing, ulcerating and cicatrizing, and old are being replaced by new lesions, gummatous infiltration, of the mouth, eye, subcutaneous tissues, bones and joints, and the cerebrospinal system, may develop more or less extensively.

Malignant syphilis is undoubtedly a rare and peculiar form of the infection. Its chief characteristic is that it is essentially a secondary condition and is in no way associated with tertiary syphilis. Patients thus afflicted show evidence of profound systemic poisoning in the high fever, loss of flesh, abject marasmus, insomnia, and pains in various parts of the body. There also may be present such grave symptoms as aphasia, epilepsy, coma, and paralyses. In these cases the nervous affections are not due to gummatous deposit, but rather to the round-cell infiltration around the vessels, chiefly of the membranes of the brain. Malignant syphilis is due to the lack of resistance on the part of the individual to the severity of the infection. It seems that the poison meets in the tissues of the person attacked such a condition of receptivity that it is generated in large quantity and with a peculiar virulence which affects the whole organism.

By far the most potent cause of tertiary syphilis is absence or insufficiency of treatment in the secondary stage. But in addition to this cause there are others which result from lowered nutrition and weak resistence on the part of the tissues. Then, again, certain diseased conditions may act as secondary factors in the development of this late and erratic stage of syphilis.

One of the most formidable complications of syphilis is tuberculosis, and it is only too clearly proven that tissues attacked by syphilis become perfect hotbeds for the fructification of the tubercle bacillus. This destructive and deadly symbiosis is seen in the secondary and in the tertiary periods. In early secondary syphilis, even when well treated and in seemingly healthy subjects, bronchitis or pneumonia may develop and upon them acute miliary tuberculosis may supervene and carry off the patient. Then, again, when syphilis runs a severe course, in some truly malignant cases, tuberculosis supervenes and quickly kills the patient.

Gummatous infiltrations of any or all of the viscera are liable to be attacked by tuberculosis, and syphilitic sarcocele is not infrequently the seat of this second invasion. When considering the factors of gravity in syphilis, we unfortunately must accord to tuberculous infection a prominent place. Chronic alcoholism is a powerful factor in inducing the development of severe

and extensive lesions of the skin and mucous membranes, of cerebral disorders, of a debilitated condition of health, and causes the disease to run into its tertiary stage.

In malarial subjects the course of the disease is frequently severe, the condition of ill-health is well-marked, neuralgias are very frequent and the specific lesions are copious and extensively distributed.

Bright's disease is a factor of much gravity in patients also infected with syphilis, and in many cases its course is very severe. Then again, we sometimes see men and women who have advanced kidney degeneration in whom syphilis runs a surprisingly mild course. Diabetic subjects who contract syphilis are very commonly profoundly influenced by the infective process. Their lesions are extensive and show a tendency to ulceration, and the general depression of health is very marked. The various morbid blood states, such as scurvy, the hemorrhagic diathesis and hemoglobinuria, are serious complications of syphilitic infection, and in patients suffering from them it is common to observe a severe course of the disease. Influenza is frequently seen to be the cause of great systemic depression, and it may become a factor of much gravity in syphilitic patients, in some of whom severe pulmonary affections occur. Rheumatism and gout are not uncommon complications of serious import in syphilitic patients, in some of whom the specific lesions are materially modified by this harmful symbiosis. The debility following various infective processes, such as typhoid fever, diphtheria, erysipelas and the exanthemata, renders the course of syphilis severe for a long or short period.

When it is remembered that syphilis expends its morbid action largely and extensively upon the blood-vessels, the fact strikes one that in old persons the severity of the attack is very much influenced by the condition of the vascular system. Upon the integrity of the patient's blood-vessels, therefore, hinges in a large degree the greater or less severity of syphilis. In old persons arteriosclerosis is common, and may involve more or less of the circulatory apparatus. Besides vessel changes, visceral lesions, general debility, an unstable condition of the tissues, and the systemic morbid effects produced by vicious habits and indulgences, are undoubtedly factors of gravity in syphilis of advanced life. A review of my own experience has convinced me that in many elderly persons of vigorous physique and good habits syphilis runs a comparatively mild course; in less vigorous persons it is more severe; but that in poorly nourished, weakly, and underweight indivduals, in the nervous, excitable, neuropathic, and overstudious (brain-workers from all classes) it is often severe and even disastrous in its effects.

Finally it may be said that early, efficient, painstaking and prolonged treatment is most essential in all cases of syphilis, and by it the course of the disease in the young and the aged may be much modified, may be rendered mild, and in most cases a cure may be produced.

142 West Forty-eighth Street.

PROGNOSIS OF SYPHILIS: RELATIONS TO MARRIAGE AND HEREDITY.[1]

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Syphilis constitutes a social as well as an individual danger. From the standpoint of the individual the prognosis refers only to the risks to his own personal health; from a social point of view the prognosis becomes magnified in importance as the health and life of other individuals may be involved. In determining the prognostic significance of syphilis in relation to marriage and heredity there are two classes of dangers to be considered: first, the personal risks to the prospective husband, which may seriously compromise his health or life and incapacitate him for the responsible position as the head, the material support and breadwinner of the family; second, the contagious risks to the wife and the added increment of danger to the offspring which would come from her infection. Where the question of marriage is concerned, the first order of dangers is apt to be overlooked by the physician who considers only the infective risks to the wife and offspring, but it is to be observed that when syphilis is no longer contagious nor transmissible by heredity, the possible dangers to the health of the husband from his disease are not always extinct.

It is a peculiarity of syphilis that its most dangerous and even deadly consequences are essentially late manifestations. More than 50 per cent. of the most dreaded accidents of syphilis, affecting the brain and end on other organs essential to life occur after the tenth year of the disease. It is further to be observed that these grave lesions of important organs resulting in hemiplegia, paraplegia, tabes, general paralysis, blindness, etc., conditions which are permanent and irremediable, often develop in syphilis characterized by an initial benignity and pursuing a mild course. Their occurrence cannot, of course, be attributed to the mild type of the disease, but to the fact that the patient has been lulled into a false sense of security and has not received a thorough and efficient treatment.

Unfortunately the prognostic indications which point to the development of these late tertiary manifestations of a severe type are often absent. There is nothing more difficult or uncertain than forecasting the future of a given case of syphilis. A favorable prognosis based upon the benignity of secondary manifestations is entirely illusory as a guarantee against the malignancy of tertiary

[1] Read at the Medical Society of the County of New York, March 27, 1905.

lesions, especially when the only solid guarantee —that furnished by sufficient specific treatment —is wanting.

Of all the menaces to the health and life of the individual, lesions of the nerve centers are most to be dreaded. In many cases there are valuable prognostic indications to be drawn from the disease which point to the involvement of the nervous system. The localization of specific lesions in the ocular apparatus, the occurrence of iritis, transient paralysis of the muscles of the eye, the sign of Argyll-Robertson pupillary immobility, etc., are to be regarded as probable though not positive precursory signs of cerebral syphilis.

The second order of dangers refers to contamination of the wife, who may be infected from the contagious accidents which the syphilitic husband bears upon his person or she may receive syphilis by conception.

The prognosis of syphilis from the viewpoint of its infective risks to the wife must be based upon the determination of the duration of its contagious and transmissive periods. Since there is no scientifically accurate test for determining the date of the extinction of the virulent principle in the human body, our knowledge upon this point is based chiefly upon the results of clinical observation. No fact is better established than that when the syphilis is recent and active, conjugal contamination is practically certain; infection may occur even when the husband has no contagious lesion upon his person.

The prognosis is always more unfavorable when there is a tendency to the repeated recurrence of papular lesions localized in the genital and buccal regions, which are the chief centers of contagion.

Clinical observation shows that the contagious activity of syphilis is markedly attenuated, and finally extinguished by time and treatment. Unfortunately the time limit does not admit of exact mathematical expression; it varies in different cases. The elements which constitute a favorable prognosis are the advanced age of the diathesis, a prolonged exemption from specific manifestations, twelve or eighteen months after the completion of the secondary stage and sufficient specific treatment. The arbitrary designation of a period of two and one-half or three years as perfectly safe for a syphilitic man to marry is, medically, an error, and, socially, a danger.

As before intimated, the prognosis of syphilis in relation to heredity is much more unfavorable when the wife becomes infected, as to the relatively restricted influence of paternal heredity there is superadded the much more potent and prolonged influence of maternal heredity, constituting what is known as mixed heredity. The prognosis of syphilis so far as its transmissive power is concerned is based upon the same elements which enter into the determination of the period of its contagious activity. There is a certain concordance but not an absolute identity between those two periods. In general, it may be said that the corrective influence of time upon syphilitic heredity is less marked, since the hereditary influence may be manifest long after the disease has ceased to be contagious; this is especially true of maternal heredity.

On the other hand, the preventive influence of treatment upon syphilitic heredity is more marked but less permanent. If the syphilitic parent is under the active influence of mercury at the date of impregnation, the pregnancy may result in a healthy child, but if the treatment is suspended, the next child may be syphilitic. Specific treatment seems to hold in abeyance, rather than extinguish the influence of hereditary transmissibility. Experience shows that when the syphilitic diathesis has been subjected to the double depurative action of time and treatment during a period of four years its contagious and transmissive qualities are extinguished. We may therefore conclude that the two most essential elements of a favorable prognosis of syphilis in relation to marriage and heredity are time and treatment.

The consideration of the prognosis of syphilis in relation to marriage would be incomplete without reference to the reciprocal influence of marriage upon syphilis. It is well known that marriage favorably influences certain diseases and aggravates the course of others. In a syphilitic individual in whom the preferential infection is especially directed toward the nervous system the prognosis would be rendered much more unfavorable by marriage. It is well established that the sexual excess not uncommon in early married life aggravates the nervous symptoms and may precipitate serious implication of the brain and cord. In many cases general paralysis and tabes are due to the combined effect of syphilis and sexual excess, just as cancer and leucoplasic affections of the tongue and buccal mucous membranes are due to the combined effect of syphilis and tobacco. Fournier has reported a number of such cases and my own inquiries have elicited the information that in the Manhattan State Hospital for the Insane, on Ward's Island, in a large proportion of cases of general paralysis, there is a history of syphilis and sexual excess in married life. The exhaustion of the nerve centers consequent upon sexual excess may explain the development of the paralyses.

66 West Fortieth Street.

Influence of Electricity on Gastric Secretion.—Many experiments have been published, showing that the influence of electricity upon the gastric secretion in man is slight, yet R. FREUND (*Virchow's Archiv.*, Vol. 180, No. 2) has deemed the subject of sufficient importance to repeat the experiments on animals. One electrode was introduced into the stomach through a gastric fistula, the other electrode was applied to the abdomen, with both galvanic and faradic currents, only a slight amount of alkaline mucus was secreted from the gastric mucous membrane, so that the value of electricity in diminished acidity is absolutely nil.

DERMOID CYSTS OF THE MEDIASTINUM.

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(Continued from Page 410.)

12. *Virchow.* Seltenere Beobachtungen: II. Teratoma myomatodes Mediastini. *Virchow's Archiv*, Bd., LIII, p. 444, 1871.

E. K., artilleryman, aged twenty-two years, was admitted to hospital April 6, 1870. Patient was strongly built, well nourished, did not look sick. For several weeks he had complained of frequent chills in the evening, dyspnea, stabbing pains in the right front of thorax and near the right shoulder blade and slight cough with mucous sputum.

Status Præsens.—Expansion somewhat diminished on the right. Thorax symmetrical. Percussion (see Figure 3) gives absolute dulness on the right from the third rib down, passing into the liver dulness and on the left into that of the heart. The upper border of dulness passes obliquely from the third rib downward, outward, and backward to the inferior angle of the scapula. Over the dull area no breath sounds are heard; behind, above the dulness, roughened vesicular breathing. Pectoral fremitus absent on right front and side. Examination of left lung and heart negative. Lower edge of liver is about two finger-breadths below costal margin in nipple line. Temperature normal; pulse slightly accelerated.

Dyspnea, feeling of oppression, and pain increased as the disease progressed. During May a tumor developed at the end of the third rib, which reached the size of a small fist. Dull area on right gradually increased in extent and the right side of the chest became much larger. On May 27 an edematous swelling developed in the right axilla, which soon spread over the entire right side and abdomen; no fluctuation in it. Death occurred on June 14 after an illness of about two months.

Autopsy.—Marked emaciation. On the third left rib an elastic tumor; the mass consisted of a loose tissue and contained blood clot. On opening the thorax a very large tumor was found in the place of the expected exudate; it occupied the larger part of the right half of the thorax, extending to the left of the middle line, and was adherent to the right lower lobe, pericardium, large arteries and veins; it was rather lobulated. In the tumor were found many cysts, the contents of which varied, hair, bits of epidermoid material, cholesterin plates, and fat droplets being seen; the walls were covered with ciliated or pavement epithelium, and in places contained cross-striated muscle and cartilage. Some parts of the wall presented the appearance of sarcoma, others that of carcinoma; similar changes were found in the mass attached to the third rib. Liver presented many hard nodules on its surface and in the substance. Spleen enlarged; several cysts on the surface, largest the size of a walnut, with bloody fluid contents.

13. *Kückman.* Anlegung einer künstlichen Cystenfistel zur Heilung einer Haarbalggeschwulst im Mediastinum anticum. Inaug.-Dissert., Marburg, 1874. (Cited by Ekehorn and Dangschat.)

Patient was a male, aged thirty-three years, who had been perfectly well till his twenty-ninth year. In March, 1872, he was taken with pains in the left shoulder and in the back of the head. Soon he noticed that a tumor, which grew slowly but steadily, was developing on the left side of his neck anteriorly. On admission to the Marburg clinic the mass was the size of a goose's egg, pushed the sternal end of the clavicle forward and gave fluctuation. The patient had marked dyspnea. Exploratory puncture gave a yellowish-brown fluid with small particles of fat and pavement epithelium. Diagnosis: Dermoid cyst. On incision a purulent fluid with hairs, singly and in tufts, was evacuated. The finger could be inserted through the opening to the second rib under the sternum. Drainage was maintained. Not long after this the patient passed through two attacks of pneumonia; during this time he expectorated a large quantity of foul-smelling sputa in which many strands of hair were found. Drainage being insufficient, an opening was made through the sternum 2 x 3 cm. The condition of the patient was greatly improved, the expectoration diminished, the putrid odor decreased, and he was discharged from the hospital. In February he returned to the clinic and said he had been entirely well for four months; the opening into the bronchus was no longer evident, as he had no cough at all. Examination with a sound showed that the sac was in reality much smaller and was freely movable.

14. *Foà.* Ciste ateromatosa del mediastino in un' alienata cronica emofiliaca. *Il Morgagni Giornale Indirizzato al Progresso della Medicina*, XVI, p. 498, 1874.

B. B., female, aged sixty-one years, had suffered from no illness excepting intermittent fever for fourteen years, according to the statement of a relative. Occasionally she had had myodynia and pleurisy, and there was marked tendency to hemorrhage after the slightest abrasion of the skin. No palpitation nor dyspnea. For the last few weeks there has been edema of the feet and legs. Death resulted from pneumonia.

Autopsy.—Upper, middle and lower lobes of right lung showed red hepatization. Between the pericardium and the visceral pleura of the lower one-third of the right lung could be seen a glistening, white body, loosely adherent to pleura, pericardium, and posterior mediastinum. The tumor was rather round, of pasty consistency, and on section, a quantity of clotted yellow material escaped. Microscopically the latter consisted of numerous more or less de-

generated epithelial cells, fat droplets, and some pigment crystals. The cyst wall was formed of connective tissue covered by pavement epithelium.

15. *Gläser.* Mentioned by Danzel. Geschwulst mit Haaren im Rectum. *Langenbeck's Archiv*, Bd. XVII, p. 443, 1874.

At autopsy hairs were found in the lung.

16. *Smythe.* Dermoid Cyst of Lung. *The American Practioner*, Vol. XIX, p. 313, 1879.

January 31, 1879, an unknown woman died at a boarding house where she had been only a few hours. No history was obtainable. From those who had talked with her, it was learned that she appeared greatly exhausted, breathed with much difficulty, and suffered severely from paroxysms of coughing. Her hands and lips were of a livid, almost purple hue. She said she had been suffering from what physicians told her was consumption for about three years.

Autopsy.—Slight emaciation. Hair light, age about thirty or thirty-five. Lower and middle lobes of right lung hepatized. Moderate serous effusion of left pleura. Entire upper portion of left side of chest was filled with a mass extending from above downward to the lower margin of the sixth rib and just beyond the middle line. The tumor was cystic, and from its wall hair, some of which was fifteen inches long, grew and thoroughly mingled with the sebaceous contents, which were about of the consistency of Dutch cheese. Imbedded within the thickened wall of the cyst was a genuine bone; it was very irregular, horseshoe shaped, and weighed 120 grains.

17. *Marchand.* Beiträge zur Kenntniss der Dermoidgeschwülste. Zweiundzwanzigster Bericht der Oberhessischen Gesellschaft für Natur und Heilkunde, p. 235. Giessen, 1883. (Cited by Ekehorn and Dangschat.)

A woman, aged twenty-seven years, married, well advanced in pregnancy, became suddenly ill with pneumonia of the left lower lobe; there developed a gradually increasing pleuritic exudate of the left side. The upper lobe also became infiltrated. In addition there was a small exudate on the right side, and finally peritonitis, which caused death.

Autopsy.—In the upper part of the mediastinum is a tumor the size of a child's head, round, tense, which extends from the second rib to the fifth, and, to the left, beyond the sternal margin and fills the entire upper part of the right pleural space anteriorly. The tumor is cystic and adheres to the upper lobe of the right lung. Heart is forced downward and to the left. In the left lung there are compression and fresh hepatization. The cyst wall is formed of firm fibrous tissue, calcified in several places; the inner surface is in general smooth with several small prominences which are covered with numerous blond hairs. The cyst contained about one-half liter of thick, bright yellow, very turbid fluid with larger fragments and masses in which hairs are embedded. From the outer surface of the cyst two tongue-shaped prolongations pass upward on the anterior surface of the trachea almost to the lower border of the thyroid gland. They look like fat and on microscopical examination resemble thymus tissue.

18. *Butlin* (Paget). A System of Surgery, by Holmes and Hulke, 1883, Vol. II, p. 259.

"I have lately seen one of these cysts (dermoid), situated deep down behind the first bone of the sternum in a young man who was brought to Sir James Paget, and in whom it had commenced to grow during adult life. It contained masses of connective tissue, covered with skin and fine hairs, and beneath the skin were numerous sebaceous glands. The cyst was freely opened by Mr. Taylor (of Coltishall), the solid growths removed, and the cavity allowed to fill by granulations."

19. *Pinders.* Ueber Dermoidcysten des vorderen Mediastinums. Inaug.-Dissert., Bonn, 1887. Also *Finkler* and *Ribbert. Berliner klinische Wochenschrift*, Bd. XXIV, p. 250, 1887.

Autopsy.[1]—In the anterior mediastinum between the first and fifth ribs there is a nodular tumor close against the sternum and adherent to the second and third left costochondral junctions. Lungs are pushed backward by the tumor. In the apex of the left lung there are discrete, grayish white nodules. Anterior part of upper lobe is firmly united to the tumor, which apparently has grown into it, forming a large mass softened in the center. Upper right lobe is adherent to tumor and contains similar but smaller mass, with many small ones. Aorta free; there is a large lymph gland near the esophagus. Heart is pressed downward; fibrinous pericarditis. On section the tumor consists of an upper solid portion with a cyst the size of a goose's egg in the lower right side. The inner surface of the latter is smooth, and large calcified areas are found in the wall. The cyst is filled with a grayish brown, fatty material. Microscopical examination showed that the solid part was lymphosarcoma, which had metastasized and undergone fatty degeneration. The cyst contents were seen to consist of fat and cholesterin crystals, and nuclei resembling those of epithelial cells. The liver was one finger breadth below the costal margin.

20. *Pinders. Ibidem.* Male, aged fifty-three years, died of bulbar paralysis.

Autopsy.—Between the pericardium and the left primary bronchus is an encapsulated tumor the size of a goose's egg, whose walls are in part calcified. On its posterior surface a soft tissue is attached; this extends upwards as far as the upper aperture of the thorax, decreasing in thickness as it ascends, and finally becomes inseparable from the adipose tissue. On section the tumor is shown to be a multilocular cyst. The largest space is uneven on the inner surface, and its contents on microscopical examination cor-

[1] Clinical findings by Strauscheid in his Inaugural Dissertation. (This I could not obtain.)

respond with those of the previous case (19). Because of defective preservation the histological examination was difficult. In places the wall resembled hyaline cartilage. The smaller cysts contained cells chiefly. The prolongations from the posterior wall of the cyst resembled thymus tissue.

21. *Loewenmeyer.* Demonstration eines Präparats (Dermoidcyste des Mediastinums). *Berliner klinische Wochenschrift*, Bd. XXV, p. 135, 1888.

The patient, a male, entered the hospital in 1884 because of hemoptysis and left sided pleurisy with effusion with moderate exudate. He recovered soon. There was quite marked bulging of the left half of the thorax, with impaired resonance, which extended from the clavicle to about the sixth rib. Apex beat could not be felt in the normal position, but there was a rather diffuse impulse on the right side and pulsation in the epigastrium. In the following years the patient worked quite hard, was in relatively good condition, and had no pressure symptoms. Recently attacks of dyspnea have come on, which have become frequent and severe. After admission suddenly extreme dyspnea and marked cyanosis set in, lasting till death.

Autopsy.—A tumor about the size of a child's head, with smooth, tense walls, occupied the greater part of the left side of the thorax. Its anterior surface was free against the chest wall, otherwise it was adherent to the neighboring parts, especially to the pericardium, which lay in the right half of the thorax, to the diaphragm and the left lung. Adherent pericardium. Apex under sternum. The tumor contained cavities, the inner surface of which was lined by ciliated epithelium. In the cysts were blond hairs in tufts, with epidermis and fat.

22. *Sangalli.* Grossa ciste colloidea composta del polmone destro con peli, glandole sebacee e lamine ossee nelle sue pareti. Rendiconti del R. Instituto Lombardo. Serie II. Vol. XXI, p. 662. (Cited by Pflanz and Ekehorn.)

A woman, aged fifty years, died in 1880 after a long illness, during which the attending physician had considered the condition one of chronic pulmonary tuberculosis with large serofibrinous effusion into the right pleura.

Autopsy.—No tuberculosis was found, no pleuritic exudate. The right half of the thorax was occupied by a large tumor which had compressed the right lung markedly. The tumor was adherent to the middle lobe of the right lung and extended downward to the diaphragm. It proved to be a multilocular cyst with bloody, atheromatous contents in which many fine blond hairs were found. In the wall were hairs, hair follicles, sebaceous glands, bone, and cartilage. Pavement epithelium lined the cysts.

23. *Buyvid.* Fibrous Mediastino-pericarditis, Adhesion of Heart to Pericardium, and Dermoid Cyst. *Medizinskoje Obosrenje*, Mosk., XXXII, p. 97, 1889.

E. K., male, aged twenty-three years, a Co sack, entered the hospital December 13, 188 with the diagnosis of pleurisy. February 2 1889, the patient was discharged from the arn because of anasarca. He re-entered the ho pital March 4, 1889. Respiration harsh, on t left, in the axilla, bronchial. March 23 the was noted ascites, considerable dyspnea, a swelling of the feet. Sputum bloody. Pain the region of the heart and in the chest in fro and behind. March 30, considerable fluid in t pericardium and pleura. Apex invisible, not p pable. Dyspnea extreme, face swollen and cya otic. Orthopnea. Marked ascites. Exitus c curred April 3, 1889, with severe dyspnea.

Autopsy.—April 4. Posterior surface sternum adherent to underlying tissues. A lar amount of fluid in the left pleural cavity. L pleuropneumonia. Anteriorly the entire space occupied by a saccular tumor which was ac dentally cut into on removal of the sternum, thick yellowish mass escaping. The tumor firmly adherent to the left lung and all t mediastinal structures, the heart being in t middle. The right half of the tumor is a d moid cyst the size of two large fists, which co tains two tumblerfuls of thick, granular, yello ish, fatty fluid with many concrements from pea to a hen's egg in size, also roundish mas containing hair. The microscope reveals pa ment epithelium, cholesterin, fat and detrit Fibrous bands extending from the cyst embra the great vessels, the bronchi, and the esophag in part.

24. *Godlee.* Dermoid Cyst of the Right S of the Chest Communicating with a Bronch Medico-Chirurgical Transactions (Londo LXXII, p. 317, 1889.

Mrs. C., aged twenty-nine years, had not s fered from any symptoms referable to the ch during her childhood. Except that she had b a little short of breath previously, the onset f her illness was sudden, and consisted in an ac pain in the right side of the chest in May, 18 followed rapidly by the development of ac right pleurisy with effusion. This develo d into an empyema. Tapping was postponed, d the diagnosis was confirmed by rupture i bronchus. Cough and expectoration diminish d, but never disappeared entirely. Slight clubb g of the fingers. The patient was first seen the author in June, 1887. At this time th was a slight swelling in the right axilla, c center of which was a little tender. A cert n amount of pain was also often felt shooting p to the right infraclavicular region. Percuss n gave dulness at the base with peculiar out e (see Figure 4): it was most marked in the ax l, but extended towards the middle line in fr nt and in this situation reached the level of c third rib, but behind it was abruptly limited by a line passing in a curved direction downwa ds and upwards, and then vertically downwa ds below the angle of the scapula. Over the all

rea little or nothing to be heard. The patient
as anesthetized, and with an exploring trocar
us was hit at the tender spot, just outside the
namma in the sixth interspace. A portion of
ie rib and dense pleura were incised and a small
avity was found, from which about one ounce
i pus escaped. At the back of the pleura a firm
ounded mass was felt, which was thought to
e a piece of the lung adherent to the thoracic
alls. Expectoration stopped at once; a thick
opurulent discharge remained, and drainage
as difficult. The patient had coughed up two
airs since the operation, and one or two had
en noticed on the drainage tube. They re-
mbled the axillary hair which had been shaven.
he patient now said she had on two occasions
ughed up a hair, which she thought at the time
ie must have inspired. August 9, 1887, the
ening was enlarged. At least two handfuls of
ir and fatty stuff were removed; then strange,
hite, finger-like processes were observed, which
oved to be thick masses of fibro-cellular tissue
vered with skin, from which hairs were grow-
g. A drainage tube was introduced and the
scharge became slightly offensive. September
, 1887, the opening was again enlarged. Three
ger-like processes were removed. The cavity
as found to extend right up to the apex of the
orax, and the wall of the cyst was most in-
nately connected with the surfaces of the lung
d diaphragm. Removal of the cyst was con-
dered too dangerous. Improvement from the
eration was rapid. Discharge still copious and
ther sour smelling. The opening, which it
as intended to have large, contracted so that
ly a small drainage tube was admitted. The
pectoration showed that the bronchial open-
g still remained.

A letter from Mr. Godlee, written November
1904, conveys the information that "the pa-
nt died October 26, 1891, that is, four years
ter my first operation, after a week's illness
om 'pyemia.'"

25. *Koenig.* Lehrbuch der speciellen Chirur-
e, Bd. II., p. 45, 1889.

Roser incised a dermoid cyst presenting in the
prasternal fossa and later trephined the ster-
m to secure evacuation of the contents.

26. *White.* Dermoid cyst attached to the front
the pericardium. Transactions of the Patho-
gical Society of London, Vol. XLI, p. 283,
89-90.

The specimen consists of a dermoid cyst about
e size of a large Tangerine orange. It was
ached to the anterior and right surface of the
ricardium and by a few adhesions to the right
ng. It was filled with dirty yellowish fluid
ntaining cholesterin and oil globules. There
as also a large quantity of solid sebaceous
terial, and some hairs which seemed to be
losely attached to the interior of the cyst.

27. *Sormani.* Un Cas de Kyste Dermoïde du
Poumon Gauche. *Gazetta degli Ospedali*, No.
4, p. 314, 1890. (Cited by Foucher.)

A. O., female, aged twenty-four years, entered the hospital at Milan July 17, 1887, complaining of attacks of dyspnea, cough and pain in the left side of the thorax. According to the parents, the patient displayed a great susceptibility to pulmonary trouble from the earliest months of infancy; it was necessary to hold her in the upright position when she was feeding from the breast because of attacks of dyspnea and cough. Her health was fair during childhood except for frequent paroxysms of cough and dyspnea. At the age of sixteen years the patient noticed for the first time brown hairs in her mucous expectoration, to which she paid no particular attention. They continued to be present. During the last two years of her life dyspnea and cough became more severe.

Autopsy.—Patient was cachetic and emaciated. The upper lobe and two-thirds of the lower lobe of the left lung contained a cyst about the size of a child's head. Its lining resembled skin; to it hairs were attached. On the inner surface there were projections. The cyst contained a grayish-yellow, foul-smelling, atheromatous pap in which brown hairs were found. The surrounding lung tissue showed interstitial pneumonia with bronchiectases at the base. In the upper lobe a second, smaller cyst similar to the first was found; this was completely separated from the latter, and in its atheromatous contents were small black hairs. The inner surface was like that of the larger cyst. Microscopical examination of the lining of the cysts revealed all the characteristics of true skin, including hair follicles, sebaceous glands and sweat glands. No cartilage was demonstrable.

28. *Marfan.* Kyste dermoïde du médiastin antérieur. *Gazette Hebdomadaire de Médicine et de Chirurgie*, t. XXVIII, p. 394, 1891.

A coachman, aged thirty years, entered the Hospital Necker July 17, 1891. Examination of lungs showed nothing abnormal. July 23 the patient became comatose and a marked inequality of the pupils appeared; the pulse was infrequent. Exitus took place during the night.

Autopsy.—July 25, 1891. On opening the thorax, there is found behind the upper part of the sternum a large whitish mass the size of two fists in front of the great vessels of the base of the heart. On incision this mass presents numerous white hairs and a very thick sebaceous matter. It forms a cavity having for its lower limit the anterior surface of the pericardium, posteriorly the great vessels, anteriorly the sternum and ribs. Between the anterior edges of the two lungs and the tumor there are loose adhesions: somewhat more firmly adherent to the pericardium. The cyst wall is very thin and its inner surface is uneven. Microscopical examination of the wall shows only connective tissue; no epithelium. Recent tuberculosis of the lungs, tuberculous ulcers in the intestine and tuberculous meningitis are found.

29. *Kocrte.* Berliner medicinische Gesellschaft. Sitzung am 11. November, 1891. *Berliner klinische Wochenschrift,* Bd. XXVIII, p. 1204, 1891.

The patient, a male, entered the hospital with a fistula of the anterior chest wall. He said he had had marked pressure symptoms in the chest a short time before, then the fistula formed; since then there had been improvement. A part of the anterior chest wall, the second rib, and a piece of the sternum were resected and a small sac, the size of a fist, was met with; this was filled with characteristic dermoid contents, including hairs. In time only a small fistula, 4 cm. long and as thin as a lead pencil, remained. The patient, who also had pulmonary tuberculosis, felt so well that he left the hospital. Several weeks later he died of hemoptysis. No autopsy.

30. *Harres.* Ueber Zähne in Dermoidcysten. Inaug.-Dissert., Zürich, 1892, p. 45.

The specimen showed a dermoid cyst of the anterior mediastinum the size of a fist lying between the heart and the left lung. In the wall, which resembled skin in many places, bits of bone and cartilage, as well as hairs, were found.

31. *Bastianelli. Riforma Medica,* May 20, 1893. (Cited by Pflanz.)

A female, aged twenty years, had had a fistula on the left side of the neck above the sternoclavicular articulation for four years, resulting from incision of a tumor in this region with the evacuation of fat and hairs. The fistula was opened, its walls excised, and the edges of the wound approximated. Union by first intention; after several weeks rupture with escape of pus. After two similar attempts the manubrium sterni was resected, and behind it a tumor the size of a nut was discovered. This was dissected free from a large vein, the pericardium, and the esophagus; it was less firmly adherent to the aorta. Total extirpation of the tumor was done. Uninterrupted and permanent cure resulted.

32. *Kraus.* Ein Fall von ausgedehntem linkseitigem Pleuratumor. (Malignes Sarcom und Dermoidcyste.) Inaug.-Dissert., Bonn, 1893. Autopsy findings also reported by *Jores.* Ueber die Verbindung einer Dermoidcyste mit malignem Cystosarcom der linken Lunge. *Virchow's Archiv,* Bd. CXXXIII, p. 66, 1893.

N. K., male, aged thirty-nine years, entered the medical clinic at Bonn, August 23, 1892. Family history negative. Three years ago the patient was taken with febrile symptoms, acute pain attributed to left-sided pleurisy, and moderately severe catarrh of the smaller and larger bronchi. After two months he returned to work, but occasionally had stabbing pains in the left side, his general condition remaining good. Since May, 1892, he has had continuous pain in the left lower part of the chest. Cough with considerable expectoration, never bloody, has been present since July. During the last three weeks there has been severe dyspnea, which causes him to apply for relief.

Status præsens.—August 23, 1892. Frame is strong; muscles well developed. Expansion of lungs equal. Percussion gives marked dulness (see Figure 5) above and below the left clavicle the same being continuous with the heart dulness and extending into the left side as far as the posterior axillary line. Left back and entire right side clear on percussion. On auscultation there is practically no breath sound over the dull area; strong vesicular over the right front. Vocal fremitus is absent in the left front and side. Behind there is relative dulness on the left above with prolonged expiration; a few râles over lower left with bronchial breathing at the angle of the scapula; over lower right bronchial breathing. Heart dulness extends to right parasternal line. Over the base there is a prolonged systolic murmur. Left jugular fuller than right. There is diffuse sytolic heaving on the left side of the chest. August 24, 1892, exploratory puncture yielded a hemorrhagic exudate; the operation was repeated on September 19 with like result, only a small amount being obtained. Soon dulness appeared behind, puncture giving a serous fluid. About the middle of October complete paralysis of the left recurrent laryngeal. Soon the right pupil became wider than the left. In November edema of the left leg came on, less marked on right. The dyspnea became much worse, and on November 11, 1892, exitus occurred.

Autopsy (Jores).—November 12, 1892. Fairly well nourished body, rather marked edema of left arm. Left half of thorax very prominent especially in the upper four interspaces. In the left half of the thorax there is a large grayish-red tumor. It is firmly adherent to the diaphragm and the left pleural cavity is filled up by it. The lower part is composed chiefly of a grayish-yellow, pulpy material, in which cheesy particles and numerous blond hairs lie. Removal of this exposes a cyst 19 cm. broad and 6 cm. high. Smaller cysts are also found. Cartilage is found in the wall. Anteriorly, forwards the heart, a cyst the size of a fist is found. The wall presents many prominences, on one of which are two small teeth. In the right lung solid tumors are found in all lobes. Microscopical examination showed that the cyst wall in places had the structure of the skin, with sebaceous glands and hair follicles. Cubical and cylindrical epithelium was found in some of the smaller cysts. Unstriped muscles and sweat glands present in the wall. Malignant changes (sarcomatous) were found, the tumors in the right lung being metastases.

33. *Kretz.* Beitrag zur Casuistik der Dermoïde. *Wiener klinische Wochenschrift,* Bd. VI, p. 861, 1893.

The patient was a man, aged thirty years, in whom a diagnosis of pulmonary tuberculosis with bronchiectasis in the left upper lobe was made. He entered the hospital eight days before death and during this time no hairs were detected in the sputum, nor was there any history of this.

Autopsy.—Body large and thin. Adherent pericardium. Tuberculosis of both upper lobes. In the upper lobe of the left lung a cavity about the size of an apple was found, filled with hair, pus, and fatty material. It lay in front of, and below, the hilum of the lung. The cyst communicated with the bronchi, and the wall resembled epidermis. Near the opening there were light blond hairs. In the wall sweat and sebaceous glands were found, but no adherent hairs were made out. Death was due to tuberculosis.

34. *Dardignac.* Tumeur dermoïde du médiastin antérieur. *Revue de Chirurgie,* t. XIV, p. 776, 1894. First reported for Dardignac by *Peyrot.* Kyste dermoide du médiastin. Bulletins et Mémoires de la Société de Chirurgie de Paris, t. XX, p. 414, 1894.

N. W., a soldier, aged twenty-two years, entered the military hospital June 18, 1893, because of dyspnea and swelling in the thorax. In May, 1889, the patient, then sixteen years old, had an unaccountable feeling of lassitude, accompanied by persistent pains localized in the right supraspinatus fossa. One and a half months later a prominence was noted in the upper one-third of the right side of the thorax anteriorly. Towards the end of November, 1899, the patient was compelled to stop work on account of dyspnea. Hydatid cyst, probably arising from the liver, was diagnosed. The patient entered St. Antoine Hospital. Dyspnea and retrosternal pain were severe. Exploratory punctures in the hepatic region were negative. Towards the end of February, 1890, the needle was inserted inside of, and at the level of, the right nipple. Eight hundred grams of a cloudy, yellowish liquid came away. Relief was immediate. A few days later five hundred grams were withdrawn. March 5, 1890, the patient left the hospital in good general condition, but weak. In the following autumn he returned to work and was without symptoms during 1891 and 1892. Early in January, 1893, the patient noticed difficulty in performing gymnastic exercises. Each morning there was paroxysmal cough for five or six minutes. June 19, 1893, the following notes were made: Patient is slightly emaciated. There is a bulging of the right front of the chest, most marked about the nipple; it is over the fourth, fifth and sixth ribs, between the parasternal and anterior axillary lines. No pulsation here. Percussion (see Figure 6) gives absolute dulness from the third rib to the base. In the right axilla and back dulness in the lower third, otherwise clear. Over the dull area there is absence of breath sounds. The interscapular space on the right gives weak blowing breathing; no sound over the base. Neither egophony nor pectoriloquy is present. Left lung is negative; heart negative. The liver is two finger-breadths below the margin of the ribs. Exploratory puncture into the most prominent part of the tumor yields a thick, opaque, greenish fluid; microscopically, no blood or pus. Blood examination shows no leucocytosis. August 3, 1893, the patient was operated upon. Part of the fourth rib was resected, and a whitish tissue, intimately adherent to the periosteum, was exposed; fluctuation was obtained over it and, after inserting a trocar, about 1½ cm., fluid similar to that previously obtained was evacuated. As the cavity was almost emptied, a large tuft of white, curly hairs escaped. The walls of the cyst were rigid. Digital exploration showed that the diaphragm formed the base, the upper part being adjacent to the pleura. On the left the heart was felt. About 1,800 grams of fluid were removed. In it red blood cells, matter analogous to sebum, and hairs were found. The patient made a good recovery; the cyst gradually decreased in size, vesicular breathing returning over the entire right back and in front, except immediately about the fistula. April 6, 1894, the patient had gained considerably in weight and felt perfectly well.

35. *Pflanz.* Ueber Dermoidcysten des Mediastinum anticum. *Zeitschrift für Heilkunde,* Bd. XVII, p. 473, 1896.

D. A., male, aged twenty-one years, a baker, had always been well up to the onset of the present trouble. For several years he had suffered occasionally from pains in the right ear, and for about one year in the right shoulder. In August, 1894, he noticed difficulty in swallowing, especially solid food. In November pains in the ear and shoulder increased and dyspnea came on with exertion; at the same time the patient noticed a swelling above the right clavicle. In the following weeks this was unchanged. The pains became more severe, especially over the tumor, and radiated through the entire arm. Bulging of the upper part of the chest was also noticed.

Status præsens.—February 23, 1895.—Patient is quite large, well nourished. Neither edema nor distention of the veins is present. There is a considerable bulging in the region of the manubrium sterni, the sternal end of the right clavicle, and the first two ribs on the right side. Skin normal over this. Absolute dulness is obtained in an area sharply circumscribed, extending 4 cm. to the right and 2 cm. beyond the left sternal margin, below in the middle line to the level of the second interspace. Over this region there is no sound of any kind, no pulsation. Above and outside the right sternoclavicular articulation there is found a movable, plainly fluctuating tumor about the size of a nut, and partly covered by the sterno-mastoid. It shows pulsation, which apparently arises from the vessels lying beneath it. Lungs are normal. Heart dulness normal in size and position, separated from the area described above by a clearer note. Radial pulses synchronous and of equal tension. Laryngoscopic examination negative. Temperature normal. Pupils equal. Exploratory puncture of the tumor above the clavicle yielded pus. It was incised and drained. Patient felt better and was discharged March 10. March 13 he returned with a swelling in the same place the size of a hen's egg. Status otherwise as before. April 12

this tumor was opened by Dr. Neugebauer. A cavity the size of a pigeon's egg was opened; it contained pus. Downwards and inwards communication was found into a larger cavity situated in the thorax. On washing this out pus escaped with the fluid, together with many short brown hairs and masses, which, under the microscope, were seen to consist of fat droplets and epithelium. The sinus became too small for efficient drainage and an opening was made in the sternum April 25. By the end of June the secretion was greatly diminished, and the cyst had shrunken. There are no longer any subjective symptoms, such as shortness of breath, cough, or pain in shoulder and arm. Early in October, 1895, the fistula was only 3 cm. deep (in June 10 cm.) and very narrow. Secretion slight, purulent, with no epithelial cells. The patient left the hospital at this time.

36. *Ogle.* Dermoid Growth in the Lung. Transactions of the Pathological Society of London, Vol. XLVIII, p. 37, 1896-97.

The patient was a man, aged twenty-eight years, who died from profuse hemoptysis. He had been ill with cough and occasional hemoptysis for five years intermittently. The physical signs suggested empyema. The temperature was of hectic type and the sputum offensive, so that bronchiectasis was discussed.

Autopsy.—Right lung contains a cavity about four inches in diameter in the lower lobe, separated from the chest wall by a thin layer of fibrous tissue. The cavity communicated freely with the middle division of the left bronchus. Many secondary bronchi open into it, and the contents are offensive, dark red material, looking like pus mixed with blood, and five or six bodies of a cream color, firm but flabby, of a pear shape, with the rough aspect of skin, and with hairs growing from their surface. In addition the contents consist of material like cream cheese and a quantity of hair. Embedded in the core to which the stalks are attached is a large tooth.

37. *Ekehorn.* Die Dermoidcysten des Mediastinum anticum. *Archiv für klinische Chirurgie*, Bd. LVI, p. 107, 1898.

M. H., female, aged twenty-one years, entered the service of Prof. Sahli in the Inselspital, Bern, January 30, 1893, and died September 14. The present trouble began with pleurisy five years ago; since then constant cough with mucopurulent expectoration. Three years ago hemoptysis occurred six times in as many weeks. Each time considerable blood was lost; it was of bright red color, fetid odor, and frothy, and was brought up with severe coughing which always led to copious expectoration, a mouthful being raised at a time. Sputum from entrance has been purulent and since the hemorrhages of a marked fetid odor. Cough is usually paroxysmal, the attacks being ushered in with moderate dyspnea. After raising a large quantity of sputum the patient feels entirely well. Between the paroxysms there is constant cough, and lying on the right side seems to bring on an attack. There are palpitation and dyspnea on exertion. The patient's father died of phthisis.

Status Præsens.—February 1, 1893. Slender frame of medium size. Muscles and panniculus very small. Marked clubbing of the fingers. Temperature and respirations normal. Left supra and infraclavicular spaces deeper than right; no difference below. Expansion good on both sides. Apex beat in the fifth interspace extending beyond the nipple line. Percussion (see Figure 7) gives a loud, deep note in the right apex and infraclavicular region. From the fourth rib in the nipple line there is absolute dulness. In the axillary line it is on the sixth rib. Over the left lung, the median part, dulness is found. Auscultation over the dull area gives greatly diminished vesicular and diffuse, scanty, fine, moist râles; bronchial breathing in the axilla, elsewhere vesicular. Over the apex of the heart there was a soft systolic murmur, otherwise negative. In the back there is dulness on the right below the seventh rib; aboye this hyperresonance. On auscultation on the right there is a sound resembling friction with blowing breathing near the median line and sonorous and moist, partly ringing râles. Pectoral fremitus is greatly weakened over the dull area. The upper border of dulness does not change with change in position of the patient. The edge of the liver is three finger breadths below the costal margin. Exploratory puncture in the back and axilla on February 21 negative. The sputum separates into three layers; bacilli and cocci present; no tubercle bacilli, no elastic tissue. After July the patient complained of headache, stabbing pains in the chest, dyspnea, and severe paroxysms of coughing. On September 14, 1893, the patient died suddenly in a fit of dyspnea.

Autopsy.—Bronchiectases in both lungs. Right lung markedly compressed by a tumor adherent to the anterior thoracic wall and to both lungs. In the middle lobe of the right lung there is a cavity from which contents similar to those of the tumor escape. On section of the latter there is seen in the upper part a whitish mass containing pieces of bone. There are several cysts, most of which contain hairs and fatty material; one such opens into a bronchus. The cavities communicate with one another. The cysts are lined with skin, some of the smaller ones with ciliated epithelium. In the solid part of the tumor cartilage and teeth are found in addition to bone.

38. *Ekehorn. Ibidem.*

The patient is a male, aged twenty-two years. He had pleurisy with effusion early in 1885. The exudate suddenly disappeared with coughing. In July, 1885, Dr. Fogman exhibited before the Society of Swedish Physicians at Stockholm a few unusual concrements which the patient had coughed up, consisting of fatty clumps of hair, thought to arise from a dermoid cyst. Early in 1886 the patient died with symptoms of severe dyspnea.

Autopsy.—A large dermoid cyst containing bone and teeth was discovered in the anterior mediastinum (Svenska lakaresallskapets forhandlingar, July 14, 1885, and March 30, 1886). The tumor, somewhat larger than a fist, is above, and somewhat to the left of, the heart. It is firmly adherent to the pericardium. From the inner wall of the cyst polypoid growths extend, as in the previous case. Fatty material, epithelial cells, and hairs form the contents of the cavity, which communicates with the bronchi. In the lower solid portion bone, cartilage and teeth are found. The lining of the cyst resembles skin in all respects. A few smaller cysts are present, lined with cubical and ciliated epithelium.

39. *Bergmann.* Ueber einen Fall von Dermoidcyste des vorderen Mediastinum. *Prager medicinische Wochenschrift*, Bd. XXIII, p. 100, 1898.

V. P., male, aged thirty-eight years, was taken ill in the latter part of December, 1896, with influenza bronchitis, returned to work before recovery, and early in the following month had typhoid lasting three months. On coughing there was pain over the second and third ribs on the right side and the adjacent part of the sternum; a swelling of the periosteum developed here, with subsequent rupture. During convalescence, which was protracted, blood appeared in the sputum after each coughing fit. The patient attributed the swelling to severe pressure on the front of the chest while tightening a screw in October, 1886. The patient is of medium size, moderately strong build. He has frequent cough, with a small amount of frothy sputum. Signs of catarrh over both lungs; no dulness. There is a swelling, as above; skin bluish red over it. In its center there is an opening the size of a pea from which an opaque secretion escapes. The tumor is of doughy, soft consistency and painful.

Caries of the bone was diagnosed and operation was performed July 14, 1897. The skin was turned back and the broken down granulation tissue and softened contents curetted away. The latter had the appearance of atheromatous matter. A movable, smooth tumor about the size of a hazel-nut presented in the midst of the contents. The tumor had a projection into the anterior mediastinum from a smooth, round opening in the sternum the size of a lead pencil. Parts of the sternum and second and third ribs were removed, and a cavity about the size of a goose's egg was exposed, which was filled with a soft, glistening, pultaceous material and a tumor. On removing the contents a well formed tooth was found, and soon a second. The tumor just mentioned consisted of four polyps of varying size. The cyst was drained. For the next few days the patient coughed and raised a bloody sputum mixed with caseous material similar to that found in the cyst. Expectoration decreased and the patient made an uneventful recovery. Examination of the tumor showed that the covering of the polypoid growths had not only the appearance but the structure of skin. Many downy hairs about one cm. long and two more teeth were discovered.

(To be Continued.)

THE SOCIAL STATUS OF TUBERCULOUS PERSONS.[1]

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ASIDE from the dozens of remedies and the numerous sanatoria and other means offered the person with pulmonary tuberculosis for the management of his disease, practically nothing is offered for the management and control of the patient himself—the individual who is the victim of the disease and who goes where he wills and expectorates where he pleases.

This individual generally compels his partner in marriage to sleep by his side, perhaps for the reason that she may follow him to the land of spirits in less than three years. As long as he is able to do so, he visits his relatives and friends because he is unfit for labor, and he is accorded the privilege of his host's house because of invalidism. He sleeps in the guest chamber, lounges in the rocker and on the sofa, depositing his sputum in a vessel provided for his convenience or he ejects it outside the door at one end of the stoop.

At the advice of his physician and desiring to rid himself of his disease, he determines to visit the health resorts; he rides in the railway cars and sleeps in their berths, his offensive breath contaminating the air and his sputtering, recurrent cough atomizing his infecting sputum upon all that it touches, he disdaining the use of a handkerchief to catch the dangerous materials. He sleeps at hotels where you may occupy the same room the succeeding night; dawdles in the office, loiters in the lobby, mingling his spittle in the cuspidors with that of the healthy. He spatters into the telephone transmitter where in the succeeding hour you may inhale the dried, noxious sputum. He drinks from the public watercup while his lips are covered with bacillus-laden saliva, and he drinks from the same glass at breakfast that you may use for dinner. He spits on the sidewalks where the sole of your shoe may be set or where the hem of your lady's garments will sweep and catch a smear of purulent material, and the shoe and garments are put in their keeping place at home to dry. At the church he mingles his outer garments with the others in the vestibule, and takes communion out of the same cup that his elbow neighbor must place to his lips the next moment. His laundry is thrown into the general wash, and his cast-off rags go into the junk dealer's bag along with Mr. Healthyman's.

He courts and becomes engaged to our daughters while he swings around the social circle, a menace to the health of all and, so far as my

[1] Read before the Ohio State Medical Association, Columbus, Ohio, May 11, 1905.

experience goes, a sure death to the victim of his affections if the engagement ends in marriage, because he usually compels his wife to share his bed to the last. In fact, so far as he is able or desires, he enjoys the same privileges, honors and social emoluments as his healthy and uninfecting neighbor.

These are some of the things that he does, and yet we wonder where all the cases of tuberculosis come from in persons who are supposed to be stout, and in families where the disease has been unknown.

These matters are not as they should be because, as in the case of smallpox or diphtheria, no mitigating or immunizing agency can be employed to hinder or lessen infection after exposure. This statement may have to be modified later because of the work being done to discover an antituberculous serum. Recently, Lathrain in the *Lancet* reports cases of this disease that improved under such a serum, as also did Richer in the *Montreal Medical Journal*. But the most interesting and encouraging reports of the work comes from Friedman, in Germany. This scientist isolated a culture of tubercle bacilli from a tuberculous lung in a turtle that produced a fair degree of immunity against human and bovine tuberculosis, and he has hopes of producing an anti-tuberculous serum of great clinical value.

Until these ideals are reached, however, it might be well to have every physician report all his cases of tuberculosis along with those of other infectious diseases, that a practically rigid quarantine or rather segregation as to methods of traveling, visiting, railroad lodging, hotel accommodations, public drinking and expectoration as well as church communion, for each case could be established. The question of marrying an infected person requires no argument. Full publicity in each case of pulmonary tuberculosis should be required and the attitude of the patient toward the public should be such as to insure its safety; besides, it should be a just cause for refusal to keep a marriage engagement should the healthy party so desire it.

The tuberculous person should sleep in a room by himself, his attendants being in the adjacent room. He should be in nowise neglected or forsaken by those who love and honor him but for self-preservation they should refuse to subject themselves to almost certain infection.

There are no grounds why he should be permitted to make social visits to a greater extent than is accorded other persons afflicted with infectious and deadly diseases. When he travels it should be under such restriction as to make him acceptable to others, or his seat in the railway cars should be isolated and prepared for the convenience of the tuberculous, the same being kept clean and properly disinfected. Hotels that shelter him should lodge him in rooms reserved for such invalids, and should be required to disinfect tableware and linen used in such rooms before they are sent to the laundry. Along this line, it would be well for everybody when traveling to carry his own drinking cup.

A township, city and village ordinance should place a prohibition upon the public expectoration of purulent material, and these ordinances should be enforced so far as possible until the dangerous and disagreeable habit is stopped.

Every church communicant should refuse to drink after the tuberculous person for reasons of health, urging the cleanliness of individual cups for each communicant and insisting that each cup be made aseptic after use.

Where a marriage agreement exists and one of the parties is unequivocably tuberculous, no damage should accrue to the healthy party for refusing to have the marriage solemnized until the tuberculosis is cured; and the mere attainment with the disease should operate as a hindrance to marriage and discharge the healthy party from his obligation if desired.

The tuberculous person should be taught that it is outdoor air and nourishing food and not change of climate that he needs; hence the practice of sending the tuberculous hither and thither in the vain quest for health has no value outside of the outdoor air that comes with the traveling; the same outdoor life at home would produce the same results.

These are my conclusions in this matter: The public should understand that tuberculosis is infectious to susceptible people; that it requires intimate and continued contact for others, but that daily contact with many different tuberculous persons may act as continued contact with one person; that houses in which tuberculous persons have lived or died are infected houses, therefore unfit to live in until thoroughly fumigated and cleansed.

Where persons are suspected of having tuberculosis and refuse to employ a physician, a health board should send a competent medical man to examine such invalids; upon the filing of such examiner's report, if the persons prove to be tuberculous, the movements of the affected individuals should comply with the regulations made for the restriction of those maladies are dangerous to others.

Having been in the practice of medicine long enough to see whole families fall victims to tuberculosis, and numerous families where two or more members were claimed by this destroyer, through infection, I have now put upon paper what is told the friends of the tuberculous. Although these conclusions may seem heartless and needlessly severe, there appears no other alternative for protection against the "great white plague." The sooner the State assumes a defensive attitude against tuberculosis the more rapidly will its encroachments cease. While it is not proposed to place the tuberculous person in the position of the ancient leper who was compelled to cry, "Unclean! unclean!" to the passers-by, yet it is intended that a just, humane and adequate segregation of all cases of (at least) pul-

monary tuberculosis should be instituted for the protection of the uninfected, and the Ohio State Medical Association can confer no greater boon upon the thousands that look to its members for protection and guidance in all matters pertaining to disease and its prevention, than to labor to this end.

MEDICAL TREATMENT OF NEPHRITIS.[1]

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MANY excellent recent contributions fully discuss the nutritive problem of Bright's disease and leave little to be said regarding its dietetic treatment. Among notable contributions may be singled out for mention and commendation the work of Von Noorden and his associates. As an outcome of these and other investigations, we find that the dietetics of Bright's disease is to-day on an unquestionably more advanced and rational basis than in former years. If any criticism is to be passed on the correctness of the conclusions of Von Noorden and others who have worked along similar lines, it is that in their investigations attention has been too exclusively focused on the kidneys. Undoubtedly the principle of economy of work to diseased organs is scientifically a sound one, but in the disease under discussion the fact must not be lost sight of that we have to deal with a widespread nutritive perversion of which nephritis is but one manifestation. Although we must admit that in most cases the kidney lesion in the end vindicates the claim to first importance, other organs demand attention during the progress of the disease, and contribute very largely to the symptom group which characterizes this affection. These other considerations, oftentimes of equal importance with renal demands, must be taken into account in the framing of a dietary, and for this investigators have made little allowance. Among important indications which must be taken under consideration are the digestive powers of the patient, the functional capacity of the liver, especially its toxin-destroying power, the presence of anemia or plethora, and, often most essential of all, the cardiac condition and the degree of blood pressure. No routine diet can, therefore, be laid down for the patient with chronic Bright's disease. If he be a confirmed dyspeptic, our measures for diagnosis of the gastric and intestinal states must be as careful and exact as are employed to determine the urinary condition. Such a patient may perhaps be best dieted for his dyspepsia, without regard for the nephritis, the latter being thus most benefited by measures directed to control of the digestive toxemia.

In the presence of marked anemia, a certain disregard of circulatory and renal consequences may be justified in our efforts to improve the blood state. With low tension a comparatively full diet, rich in proteids, without restriction of fluids; in cases with high tension, a low diet, poor in animal proteids and restriction of ingested fluids is indicated.

In cases marked by cardiac irritability and signs of circulatory failure, the indications for diet must be taken from the heart and circulation more than from the kidneys, such cases becoming in effect cases of heart disease more than renal disease. In short, each patient coming under observation for chronic Bright's disease should become an individual study, and the indications for its management must not be interpreted according to any fixed rules of procedure, but be founded on the results of careful and complete clinical investigation, the lines of treatment being directed in the order of their importance, according to the patient's complete organic needs.

To discuss fully the treatment of chronic nephritis with its wide range of associated defects is a task too great to accomplish in the short space permitted. I have thought best to present the subject in the following simple and practical order: (1) Treatment of chronic nephritis without dropsy; (2) treatment of chronic nephritis with dropsy; (3) treatment of uremia.

The existence of dropsy in chronic nephritis cannot be taken as a basis for classification, and it is even a rather arbitrary procedure to attempt to develop clinical distinctions from this point. As a rule, however, cases coming under observation fall naturally into two groups—those without and those with edema.

Cases of the first class—those without dropsy—are principally examples of the type of chronic interstitial nephritis during the stage of cardiovascular compensation. It is true that chronic diffuse nephritis may occasionally display no dropsy, but, as a rule, more or less edema is manifest. The main indications in the management of this type of chronic nephritis may be summed up in the protection of the kidneys from irritation, especially the strain imposed by intercurrent acute toxemias, and the maintenance of cardiovascular compensation.

The first of these two indications is fulfilled by careful regulation of the patient's diet and personal hygiene. The question of the diet suitsuitable to these cases I will not enter into, owing to the elaborate care which has recently been expended on this subject by eminent authorities. The personal hygiene of the patient is hardly a less important matter. In order to engage the full cooperation of the patient, it will be well to state his case fully to him, emphasizing its necessities and the importance of strict obedience. In submitting our advice as to diet and hygiene, the patient is to be informed that the directions are for his permanent guidance, and to prevent misunderstanding we should furnish him with full written particulars of the course to be pursued. The proper clothing, baths, etc., for these patients will not occupy our attention now, owing to the

[1] Read before the Illinois State Medical Society May 17, 1905.

familiarity of such details. We should urge these patients to such a regulation of their lives as will enable them to spend a large share of their time in the open air—especially in the country, where simple diet, pure air and primitive physical environs simplify the nutritive problem and furnish immunity from accidental infections. The open-air treatment is well-nigh as striking in its beneficial effects in nephritis as in tuberculosis. Exercise is of vital importance to these subjects. A good gauge of the patient's endurance is found to be a feeling of oppression and fulness in the chest, and instruction must be given against walking so far or so fast as to produce this uncomfortable sensation. It is well to advise our patients with this disease to avoid high altitudes, the limit of safety for residence purposes being 3,500 feet above sea level. Oliver's blood pressure observations show that above that point the circulatory pressure rapidly increases. Medium altitudes—about 2,000 to 3,000 feet—will lower mean arterial pressure, and this may be considered in sending patients with plus pressure to the mountains.

In directing our patients regarding the amount of water to drink, our advice must run counter to popular prejudice. The execretion of urinary solids cannot be materially increased by copious water drinking. Moreover, arterial pressure is raised and the mechanical burden of the heart is increased thereby. Our advice must, therefore, be in favor of a strictly moderate indulgence in fluids and against overindulgence, and the patient is to be especially warned against the injurious effects of the immoderate use of mineral waters, of which sanitarium and "spa" treatments so largely consist.

The doctrine of "moderation in all things" is to be preached in season and out of season to these patients, the end in view being to suit the amount of work required to the capacity of the diseased organism for its performance—in short, to avoid hyperfunction.

Two indications of vast importance to the case of chronic nephritis require special mention. They are the care of the bowels and the maintenance of cardiovascular equilibrium.

The nephrolytic action of the toxic products of disturbed digestion is now well recognized. Constipation undoubtedly favors the formation of these bodies. In addition to their renal effects, they increase arterial tension. Our utmost care should consequently be directed toward securing regular evacuation of the bowels. The action of aperient drugs should be supplemented by high rectal enemata, administered in the knee-chest or recumbent position at regular intervals to prevent fecal stasis in the colon.

In chronic nephritis there develop sooner or later during its progress certain well-marked cardiovascular changes, consisting of sclerosis of the arteries and cardiac hypertrophy. The essential feature of the circulatory state is high arterial tension. Not only is this true of so-called chronic interstitial nephritis, but even when chronic nephritis follows acute infective nephritis, the change is marked by development of increased blood pressure and cardiovascular sclerosis. The majority of cases when they come under observation manifest typical high pressure symptoms, but if no edema is present we may infer that the compensatory cardiac hypertrophy is still secure. The cardiac compensation is, however, one of tense adjustment, becoming constantly more sensitive to disturbing influences. The changes in the arteries are progressive and the increased blood pressure permanent, so that it is only a question of time when increasing peripheral resistance will outstrip the power of the heart to cope with it, and dilatation of the ventricles result. When that time arrives, the diminishing urine, increasing albuminuria, and uremia will leave us in no doubt as to which organ has conserved the life of the patient. Kidneys which can amply maintain their function under increased cardiac force and high blood pressure become miserably inadequate when such support is removed. The clinical history of the large majority of cases at their termination is that the excretion of urine was sufficiently good for the maintenance of life, and that death originated in cardiac failure or resulted from one of the cerebral accidents of excessive arterial tension. This being the case, it is a matter of the first importance to direct our efforts toward the regulation of the circulatory effects of the disease. The *indicatio causalis* for the preservation of an adequate heart is to regulate within safe bounds the arterial blood pressure. We must not, however, lose sight of the fact that a certain degree of increased arterial pressure is necessary for the comfort and safety of the patient. Samuel West has said: "The patient is best without granular kidneys, but if the kidneys be granular it is better that the tension be high than low." The experience of the writer is that no cases are so hopeless and unresponsive to treatment as those marked by low tension. In the treatment of cases of chronic nephritis some instrument for the estimation of the blood pressure is necessary, and the sphygmomanometer should be employed to conduct routine observations from time to time. The physician who depends upon his stethoscope only for information as to the circulatory state of these cases is apt to be more a detriment than a help to his patients.

In the treatment of high pressure cases the basic indication is the removal of the underlying toxemia which causes the widespread vasoconstriction. This is accomplished best by careful dietetic and hygienic regulation, and assisting the kidneys by securing free elimination from the skin and bowels. When these requirements have been fulfilled and the tension remains persistently elevated, we must have recourse to vasodilator medication to mitigate the exhaustive conditions imposed on the heart. We must real-

ize the limitation of such medication, and as it constitutes purely symptomatic treatment, never depend upon it to the neglect of hygienic and dietetic measures. It is a comparatively easy thing to reduce the systolic blood pressure a number of points within a few minutes by means of the administration of an active vasodilator, such as nitroglycerin. The effect of such a dose is unfortunately very transitory, and notwithstanding the striking temporary effect, the fact remains that it is a difficult thing to produce a permanent reduction of blood pressure by means of vascular drugs. Persistent routine medication will alone effect such a result. At what point in chronic nephritis are we warranted in commencing vasodilator medication? Much will depend on the patient's general sense of well-being and absence of symptoms, but it may be stated that when cardiac irritability or evidence of disturbed cerebral circulation (dizziness, tinnitus, etc.) appear, interference is warranted. For the rest, we must depend upon the readings of the sphygmomanometer. As a rule, a systolic blood pressure of over 160 m. of Hg. is necessary to produce symptoms. At this point hypotensive medication may be instituted. The patient should take a morning saline laxative of magnesium sulphate, Rochelle salts, or one of the aperient mineral waters. A mercurial purge at intervals of a week or ten days is often of the greatest benefit, exercising a double effect both as a peripheral dilator and by increasing the toxin-destroying function of the liver. A vasodilator excellent for its permanent influence is a combination recomended by Brunton (*Deutsche med. Wochenschrift*, Leipzig, Von Leyden number, 1902). This consists of:

Potas. bicarb.	1.8
Potas. nitrit.	1.2
Sodii. nitrit.	.03

The potassium salts are said to have a paralyzing effect on the heart. This effect is desirable in cases requiring less energetic heart action and increased permeability on the part of the arteries, thus lowering pressure at both ends of the circulation. A decided diuretic effect is also secured by the potassium salts. The writer has employed this combination in a number of cases with the greatest benefit, giving it twice daily, well diluted. Another excellent vasodilator for continuous use is erythrol tetranitrate. It may be administered in one-fourth grain doses several times daily, until a mild headache is produced, when the dose is slightly lowered. This drug may be used for weeks and months with good effect, discontinuing it for a week during each month. Another vasodilator of which I hesitate somewhat to speak is aconite. This drug is enthusiastically lauded by W. H. Thomson (*Medical Record*, May 16, 1903) for its effects on excessive arterial tension in Bright's disease, and he reports some striking examples of its efficacy in cases marked by asystole, with high tension. He orders it in five minum doses every three hours. Although it is difficult to explain the vascular effect of this drug, since it is not a direct vasodilator, but rather a cardiac sedative acting through the vagus mechanism, the empirical fact remains that it will lower blood pressure in an astonishing manner. In a recent case of my own a blood pressure of 247 mm. (Riva-Rocci, 9 cm.) was reduced 50 points in a few days by aconite, with great benefit to the patient's condition, the maximum dose employed being seven minums every three hours. In using the drug, I prefer to begin with small doses in order to guard against idiosyncrasy, and afterward gradually increase to five minum doses, or higher. It is hardly necessary to state that so powerful a depressor drug as aconite should be used with every care, and only in cases marked by excessive tension and threatened heart failure.

Iodide of potassium is another means of lowering tension of which the writer can speak with satisfaction. It is difficult to say in what manner it exerts its effect, as iodide is not a direct vasodilator. Recent observations would indicate that it acts by diminishing the viscosity of the blood, and in this way reduces capillary friction, and so lowers peripheral resistance. I know of few medicinal effects more satisfactory than the manner in which prolonged iodide administration will protect the heart from the ill consequences of high tension. It must, however, be given more or less continuously for long periods, covering in fact months and years. In the presence of high tension some restriction of fluids is indicated, and the patient's habits are to be carefully revised to avoid physical and nervous overstrain.

In the stage of sustained blood pressure and adequate heart without edema, digitalis is to be withheld, as its use is unscientific and harmful. The other cardiac tonics come under the same ban. Diuretics are unnecessary, and do no good. In fact, no medication is indicated other than cardiovascular regulation, and such measures as may become necessary to overcome intercurrent functional troubles. Intercurrent illnesses, however slight, during chronic Bright's disease should be followed by prolonged convalescence, owing to the circulatory strain constituted by effort in a reduced condition.

Whenever the heart, which has hitherto performed its work satisfactorily, suddenly displays vagaries of action, it should not be taken unreservedly as a sign of failing compensation. Some underlying reflex cause will usually be found, the correction of which will avoid serious damage to the heart. Early evidence of genuine cardiac incompensation calls for positive action. This need not necessarily consist of digitalis or other cardiac tonics, for rest in the recumbent position, restriction of fluids and general tonic measures will often restore the working capacity of the heart. Should the derangement of the cardiac action threaten to produce or actually result in dilatation, digitalis is indicated.

When the patient with chronic nephritis has become edematous, one of two things has happened: He has either developed diffuse inflammatory changes in the kidneys, or the heart has dilated. The nephritis may, of course, have been a chronic diffuse process, marked by dropsy from its inception. On the other hand, it is quite as likely to be a case of chronic interstitial nephritis, which has become converted into a diffuse nephritis by means of acute renal irritation from cold, excesses or acute intercurrent infection. It is also a fact that a large number, if not the majority, of cases displaying dropsy are chronic nephritis with failing heart, the dropsy developing as a result of ventricular dilatation. Dropsy in the course of chronic renal disease is not necessarily renal dropsy. It is quite as frequently cardiac dropsy. A better word would probably be cardiorenal dropsy. The distinction is important, especially from the standpoint of treatment. When we can decide that the dropsy, suddenly occurring during the progress of chronic nephritis, is due to an acute exacerbative inflammatory attack, the patient should be put to bed, placed on a light milk-farinaceous diet; sweated and purged until the renal congestion subsides. Baccelli (*Münchener med. Wochenschrift*, L., No. 52) has recently recommended in this form of renal congestion the withdrawal of 300 c.c. of blood from the vena pedidia. He reports great benefit and his results have been verified by others. By this procedure he seeks to lower blood pressure in the ascending vena cava, and so by creating a suction force in the venous channels relieves the congestion in the kidneys. The results are neither so prompt nor so energetic when the blood is withdrawn from the arm. After the renal engorgement has subsided, and the edema disappears, it is important to insist on a long gradual convalescence, to ensure a full return to former conditions.

When the dropsy is extensive and due to established diffuse nephritis, we are forced to rather roundabout means to relieve the renal blockade. Diuretics have next to no influence over purely renal dropsy, and their use will prove disappointing. Prolonged rest in bed is often of the greatest benefit, and should be enforced. These cases should be treated on the "little water and no salt" plan. Fluid intake should be restricted to the lowest possible amount compatible with comfort. The principle of dechloruration is to be enforced. Time will not permit of a discussion of this interesting contribution to our treatment of edemas. Since its introduction two years ago, it has earned for itself an established place in physiologic therapeutics as solving one of the underlying factors of dropsy, both cardiac and renal. In severe cases of anasarca the patient is to be entirely deprived of salt. In moderately severe cases the degree of diuresis may be taken as a criterion of the amount of salt we may permit the patient. As the normal percentage of chloride of sodium in the urine is about .5 per cent., we can safely permit as many half grams of salt as there are 100 c.c. of urine. For instance, when the daily urine amounts to 1,000 c.c., the patient can ingest 5 grams of salt. As a diuretic in renal dropsy we possess no better measure than colonic irrigation. The effect on the renal gland activity of this measure is often remarkable. Large volumes of solution at a high temperature are to be used. Decinormal salt solution is a violation of the dechloruration principle, consequently bicarbonate of soda solution of the same strength is to be preferred. From two to four gallons of this solution, at a temperature of 110° to 120° F., are allowed to flow into the bowel through a Kemp's rectal irrigator or double-flow rectal tube. The single precaution necessary is to provide against a further increase of tension in high tension cases by simultaneous use of a vasodilator.

When the degree of dropsy is such as to produce severe tension of the skin, the legs and scrotum may be drained by punctures under aseptic precautions. Hydrothorax, if the amount of fluid in the chest is such as to embarrass the heart's action, should be relieved by tapping, and ascites of high degree will require paracentesis. These latter measures may be repeated as often as the indications are renewed. I cannot say that I have seen the anemia increased or the patient's condition prejudiced in any way by repeated paracentesis. On the contrary, by temporarily relieving pressure on the venous trunks, we exert a favorable influence over the renal engorgement. Energetic diaphoresis offers us a valuable means of relieving renal engorgement, and assisting the kidney in its eliminative function. Bendix (*Deutsche medicinische Wochenschrift*, XXX, No. 7) found that when the freezing point of the blood was normal (56° C.), the most energetic sweating process failed to influence it. When, however, it was pathologically low, as in chronic Bright's disease, sweating raised the freezing point almost to normal, showing that more solid substances were eliminated under these circumstances than when the freezing point remains at a constant level. This is particularly noticeable in cases of uremia. These experiences emphasize the value of energetic sweating processes in nephritis. If the blood count shows the patient to be anemic, some form of iron should be administered, although it is well to remember that the anemia, being of a toxic production, is not so readily influenced by hematinics as under other circumstances. Valuable as iron is in the anemia of Bright's disease, its indiscriminate use in the form of Basham's mixture has unquestionably done a good deal of mischief. Basham's mixture is prescribed with a freedom in all forms of Bright's disease, as if it were regarded as a specific for nephritis. It never was suggested that it possesses any curative value, but is rarely a remedy for anemia, as under other circum-

stances. Not every case of Bright's disease is anemic, and it is clearly not indicated in non-anemic cases. In chronic interstitial nephritis it may do positive harm by helping to raise blood pressure. It is most useful in chronic diffuse nephritis, because that form is most frequently associated with anemia.

In cases of dropsy from dilated heart occurring in chronic nephritis, the treatment will differ materially in some essentials. Simple rest in bed will often bring about a restoration of heart function and subsidence of dropsy. Unfortunately many patients with high tension and failing hearts are very uncomfortable in the recumbent position, suffering from asthmatic symptoms and dizziness. These symptoms are the result of elevation of blood pressure in the lying position. Vasodilators may serve to control this, but often one is compelled to compromise on the sitting position, even allowing the patient to spend the nights in a chair. These are cases which display the inverse pulse, and paradoxical rise of blood pressure on lying down. Prolonged rest in bed, even for patients who can do so without discomfort, is hardly desirable in cardiac hypertrophy of Bright's disease. The dynamic forces of the circulation being lowered by bodily inactivity, a rise of blood pressure in the vena cavæ throws still more upon the already weakened heart —the work of maintaining the failing circulation.

The drug *par excellence* in cardiorenal dropsy is digitalis. Any reliable preparation of the drug may be employed. I have never been able to satisfy myself of the superiority of the infusion in these cases. In giving digitalis in Bright's disease it is necessary to guard the patient against the vasoconstrictor influence of the drug by means of the simultaneous use of a vasodilator. The only exceptions to this rule are constituted by those rare cases in which the blood pressure is low throughout the disease, and in cases where the cardiac weakness has caused secondary low blood pressure. A drug of great value in cases of cardiorenal dropsy is theobromine and its salts, the salicylate and sodiosalicylate (diuretin). Very remarkable results are sometimes secured by the administration of these preparations in dropsy, with underlying cardiac causes. There is evidence accumulating which tends to show that theobromine acts upon the heart by stimulating the elimination of retained chlorides, and so secondarily improves the heart's action by lessening the circulatory load. When the heart is weak, the patient must be well nourished, and receive a fair proportion of proteid food. Severe and restricted diets are to be avoided in nephritis with bad hearts.

The patient with chronic nephritis is never entirely free from the danger of uremia. Although its development is usually a progressive and gradual affair, it not infrequently falls suddenly upon the patient without warning. We sometimes see a case in which uremic coma or convulsions are the first symptoms to betray the presence of chronic Bright's disease. Any acute intercurrent disturbance, such as a simple cold or diarrhea, may serve to precipitate a violent uremia. Gastro-intestinal disturbance especially favors the development of the uremic toxemia, often, no doubt, by inducing *Bacillus coli communis* invasion of the kidneys. This fact emphasizes the importance already referred to of keeping a clean bowel.

In the presence of uremic manifestations, however slight, purgatives are to be employed without hesitation. It should be one of the rules of treatment in nephritis to give a purgative each time the patient complains of headache, dizziness, mental hebetude, dyspnea, etc., all of which may prove to be precursors of uremia. At the first appearance of uremic symptoms all proteid food should be withdrawn. Strubell (*Wiener klin. Wochenschrift*, July 8, 1901) found that dogs with experimentally induced uremia lived twice as long when fed with carbohydrates as when fed on proteids and fats.

Our blood pressure observations will enable us to gauge in some measure the imminence of uremia, the intensity of the uremic toxemia being accurately expressed by the arterial pressure, which rises steadily as the toxins accumulate. An increasing blood pressure should, therefore, put us on our guard. In acute uremia an important point is gained by lowering blood pressure. Our best and speediest vasodilator to relieve the high tension of uremia is venesection. This measure exerts its best effects in uremia complicating acute nephritis. It is of less dependence in chronic nephritis, and is only to be used in sthenic cases with high tension. It is to be avoided in asthenic and far-advanced cases. The relief following venesection is transient, but may serve a good purpose when supplemented by other active measures, such as sweating, enteroclysis, catharsis. Sweating should be carried out vigorously and as soon after onset of the uremia as possible. As soon as free diaphoresis has been induced, the sweat may be temporarily interrupted, as its persistence for too long a time may become a harmful influence. Enteroclysis by continuous irrigation of the colon with large volumes of hot bicarbonate of soda solution constitutes one of our most active measures for inducing diuresis and diaphoresis. Subcutaneous saline infusions, although beneficial in the uremia of acute nephritis, are much less effective in uremia of the chronic disease.

Time will not permit of further discussion of measures employed to combat uremia. Reference may, however, be made in conclusion to lumbar puncture. Seiffert (*Münch. med. Wochenschrift*, LI, No. 10) has employed this measure extensively in acute uremia, with great benefit. It may be employed in uremic coma and convulsions of chronic nephritis, although probably with less likelihood of success. Le Grain and Marie speak highly of the effects of this procedure in uremic headaches.

There are many important points which are not touched upon in the foregoing brief consideration of the treatment of chronic nephritis, and the writer is compelled to forego from lack of time any reference to the treatment of complications, and special phases of the disease.

The ability of the organism to adjust itself to the disturbed equilibrium of impaired organic health is marvelously displayed in many incurable diseases of important organs, and we often stand amazed at the length to which the thread of life is spun, notwithstanding the gravest organic lesions. Under no circumstance is this faculty for adjustment so wonderfully illustrated as in chronic kidney disease. Despite the most serious defects, nature's compromise not only preserves a balance of fair health, but does so for astonishing periods. A realization of this fact should be a warning to us that nature needs our assistance only, seldom our interference.

There is no room for pessimism in our attitude toward this disease, and although obviously there is no remarkable cure to be performed by any mode of treatment, careful regulation of the life, and attention to little details, judging nothing unimportant, will secure results which are unsurpassed in any of the chronic dystrophies. The two most important indications, in the estimation of the writer, are to protect the patient from intercurrent acute disturbance, and to maintain the compensatory adjustment in the circulation.

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THE CARE OF THE PERINEUM, WITH A DESCRIPTION OF A NEW METHOD OF DELIVERY OF THE SHOULDER.[1]

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Most of what has been written about the care of the perineum refers to the delivery of the head. With regard to the delivery of the head, I will mention only two points. Both of them are old, and are mentioned not because they are old—although perhaps nothing the worse for that—but because in my experience at least they have been found good.

The first is hot fomentations: cloths wrung dry out of hot water, just as hot as the hands can stand, and held in contact with the perineum during the acute pain. These do good in two ways. They relieve pain, or at least render pain more easily endured, and if we doubt it all we have to do after using them a few times is to withhold them, and see if the patient does not call for them again. They also render the perineum more elastic, so that it will stretch easier and farther without tearing, and in this way make laceration less likely.

There is a time coming, however, in the progress of the labor, when hot fomentations have to be dispensed with, when the perineum needs supporting. This brings us to the *second* point concerning the delivery of the head, the choice of a method. The particular method employed is doubtless of less consequence than the actual support given the perineum, no matter by what method. My own plan is: With the thumb on one side and the fingers on the other, reaching well out over the perineum, laterally, to make pressure from without inward toward the center, and with the ball of the palm resting well back on the posterior part of the perineum—the center of the palm not touching the anterior part—also to press forward toward the fourchette. In precipitate labor, where more resistance is needed, the fingers of the other hand may be substituted for the thumb: but for the purposes of description and in most cases it is better to place the thumb on one side and the fingers on the other, reaching out far over the deep lateral structures of the perineum, where the perineum is thick and strong and cannot tear, and with each pain press toward the central, weaker part of the perineum, the part where the great strain comes and the part that will tear, and with the ball of the palm resting well back on the perineum, posteriorly, to press also downward and forward in the direction of the outlet of the pelvis. In this way the perineum is stretched *from its circumference*, laterally and posteriorly, where the muscular development is strong and will stand stretching, while the weaker center and anterior are protected. And I keep this up just as long as I can, until the occiput has engaged, passed under and has emerged outside the pubic arch. Even then I press toward the center and forward in the direction of the outlet of the pelvis because the longer we keep the perineum from slipping over the chin the more, of course, the perineum is stretched and the roomier it becomes, and, as we all know, the more the head elongates and the less becomes the anteroposterior diameter that does the mischief. In other words, by delaying within reasonable limits the birth of the chin there is a more thorough conversion of the long occipito-bregmatic-frontal-mental diameters into the shorter suboccipito-bregmatic-frontal-mental diameters, successively, as presenting parts—the difference between danger of laceration and very little danger of laceration.

Most of us who have had some experience can, I think, take fairly good care of the perineum during the delivery of the head, the text-books to the contrary notwithstanding. It occasionally happens—has happened to me and probably to some of you, and may happen to any of us again—that after we have delivered the head without injury to the perineum, and have congratulated ourselves on that fact as we have a perfect right to do, we make an examination before leaving and are surprised by the discovery that there is a very considerable laceration. Or, if we fail to make the discovery ourselves, perhaps the nurse makes it for us, and that does not improve matters. Now, this proves, if it

[1] Delivered before the St. Lawrence County Medical Society, Potsdam, N. Y., April 18, 1905.

proves anything, that the head is not the only factor in laceration of the perineum. I think we can take a step farther and take the position that the head is not even the major factor in serious laceration; but that in many cases, after the head has been delivered with the perineum still intact or practically so, the damage is done by the ploughing through of the shoulder afterward.

In order to obviate this difficulty, or, as some put it, "to minimize the tear," I will try to describe a method of delivery that I have been using for the past nine years, and which I think well of. Ordinarily, during a considerable part of the progress of labor, my patient may assume any position that she pleases, and I often encourage the squatting position which at certain times makes for progress; but when it comes to the point of delivery I want her on her left side with back to edge of bed. After the birth of the head there is usually a short pause, during which time, or at the beginning of the pains which follow, rotation usually occurs. In this case we do not wait for rotation, but regarding it as a first presentation—the face looking backward—by placing a hand on each side of the head and making gentle pressure in the direction of rotation, rotation is easily effected. Now that rotation has occurred, what is the situation? The face looks upward toward the mother's right thigh; the occiput is directed downward toward the mother's left thigh; the right shoulder presents against the pubic arch in front; the left shoulder presents against the soft structures of the perineum, behind, *but, at least, one and one-half inches from the outlet.*

As soon as rotation is effected, and all this is but a momentary affair, I place my left hand on the right side of the child's head and press back firmly. There is no danger of doing harm here as the point where the left shoulder presents against the perineum is too high up to lacerate, so I press back as far as it will go. What does this do? First, it stretches the perineum once more *from its circumference*, laterally and posteriorly, toward the center and anterior. Muscular contraction is thereby almost entirely overcome. The perineum is now temporarily paralyzed and is elastic like rubber and can hardly be made to tear. Second, every inch or fraction of an inch that the left shoulder can be carried back into the perineum, *we gain that much* in lowering the right shoulder into the pubic arch. Now, when a pain occurs, what takes place? The left shoulder cannot descend because it is held well back and high up in the perineum. Not so with the right shoulder, which does descend. As it does so, it describes part of a circle around the left shoulder, held as a fixed point high up in the perineum, so that the course of the right shoulder is downward and slightly backward, bringing the prominence of the shoulder well back into the vulvovaginal outlet and the right arm, below the shoulder, into the pubic arch. One pain is usually enough to bring down the right shoulder and cause it to bulge well out of the vulva. This accomplished, I close the fingers of the left hand, with which backward pressure is being made, low down on the back of the neck or upper end of the spine and raise up. This increases the space between the back of the child and the maternal soft parts on the left side below and also opens the right axilla. Through this opening in the axilla, I pass the forefinger of my right hand and hook it around the arm, close to the shoulder, bring it down behind the child's back out of the vulva and sweep it over the pubic arch. Then, before relaxing my grip with the left hand, I place my right hand on the left side of the child's head and, with my left supporting the perineum, by a downward, forward and slightly upward movement, effect delivery. Thus, before there is the slightest strain on the anterior part of the perineum, we have exchanged the long diameter—from the tip of one shoulder to the tip of the other (bisacromial)—for the shorter diameter—from the axilla to the tip of the opposite shoulder (axilla-acromial) as a presenting part, the difference again between laceration and practically no danger of laceration.

This procedure is mainly applicable to uncomplicated cases, which are in the great majority. It can be employed in most forceps cases by removing the instruments in accordance with modern practice before complete delivery. A previously repaired perineum is no hindrance. The chief difficulty is in precipitate labors, and these are rare in primiparæ in which the preservation of the perineum is of such vital importance. With a thorough familiarity with the technic, the cases are few in which it cannot be successfully employed.

MEDICAL PROGRESS.

PHYSIOLOGY.

The Oxidative Processes of the Tissues.—Marked differences in the oxidative capacities of the various tissues have been observed by W. ZANICHELLI (*Arch. Ital. de Biol.*, March 21, 1905). Thus, in the dog the spleen has an oxidative power which is at least ten times as great as that of the other tissues with the blood. The second place belongs to the pancreas, and next come the kidneys and the lungs, then the liver, and lastly the blood, whose power is quite limited. The high degree of oxidative power possessed by the lungs corresponds to its marked degree of autolysis observed by Jacoby, and indicates that the pulmonary parenchyma is not only the seat of passive gaseous exchanges, but is also the seat of metabolic processes not less active than those of other parenchymatous organs. The high degree of oxidative power of the spleen is probably associated with its hematologic function. The author finds that the age of the animal has no effect in its oxidative powers.

Researches in Heat Regulation.—It has been found that special substances are formed in the blood of animals subjected to abnormal temperatures, and that

it is also markedly toxic if injected into other animals. A. MONTUORI (*Arch. Ital. de Biologie*, March 21, 1905) made a special investigation along this line, with the object of isolating these toxic substances, and of determining whether they produce the same effects in the animal in which they are generated. He transfused certain dogs with the blood of other dogs kept in baths of hot water (40° to 48° C.) or of cold water (0° to 6° C.). The results were as follows: The transfusion of the ordinary or of the defibrinated blood from the heated or refrigerated dog causes in the transfused animal a diminution or an augmentation of the quantity of heat produced. These thermic effects are proportional to the amount of blood transfused, and also to the degree of heating or refrigeration of the animal from which the blood is removed. The effects are always transitory and cease at the end of not more than twenty-four hours. The transfusion of large quantities of blood from heated dogs is fatal, which is not the case with blood from refrigerated animals. The administration of the blood by way of the stomach or intestine has no thermic effect, while the transfusion of blood from an animal kept at the ordinary temperature has also no thermic influence. These results reveal a form of heat regulation that has been hitherto unknown, indicating the production of thermo-inhibitory substances in heated animals, and of thermo-excitatory substances in refrigerated animals. This mechanism applies only in the case of the heating or cooling of the cutaneous surface of the body, and does not apply to the same condition in the lining of the alimentary canal. It is interesting to note that animals heated by general faradization furnish a blood that causes hyperthermogenesis and elevation of temperature in other animals. If an animal be injected with antipyretics (quinine, antipyrine), its blood will not cause any thermic changes in another animal, which proves that the antipyretics do not act by the production of thermo-inhibitory substances. The author next sought to discover the effects of these transfusions in the other bodily functions. They do not cause any change in the respiratory and cardiac rhythm, and produces no vasomotor effects. This shows that the thermic polypnea and tachycardia, and the vaso-constriction produced by cold are not the result of the elaboration of specific substances in the blood. Transfusions from a refrigerated animal cause, besides an increase of heat production, also an exaggeration of the respiratory exchanges. On the contrary, the transfusions from the heated animals had no effect on the gaseous exchanges. The transfusions from a heated animal cause an increased production of sweat in the animal transfused. This action is evidently a central one. Likewise, there is also an increased secretion of saliva, which is similarly a central effect, since section of the chorda tympani annuls it. There is also increased secretion of pancreatic juice. Hence, the elevation of an animal's temperature causes the production of a substance or of substances which may be compared to pilocarpine. The transfusion of blood from a heated animal or even heating an animal directly causes an increase in the muscle-glycogen. The hepatic glycogen does not suffer any marked variations. One naturally concludes that there is a transformation of the glucose of the blood into the glycogen of the muscle. The results of an investigation into the nature of the thermo-active substances were very incomplete. They are not volatile, for blood subjected to the mercury-pump preserves its thermo-activity. This evidently resides in the morphologic elements, for the serum is inactive, while defibrinated blood is active. The thermo-active substances are destroyed by a temperature of 55° C., but they are apparently not of the nature of enzymes, for the thermic effects are quite proportional to the amount of blood transfused. These substances can not be extracted with glycerin or ether. The author next studied the site of formation of the thermo-active substances and the mechanism of their activity. Heating or cooling normal blood outside of the organism does not conflict with thermo-activity. These substances are formed neither in the spleen, pancreas, nor liver, for removal of the two former or ligature of the blood vessels of the latter does not interfere with the formation of the thermo-active substances. Curarization also does not inhibit their formation. If the spinal cord of an animal be destroyed, the heating or cooling of the animal always gives rise to a thermo-inhibitory substance. The conclusion is readily drawn, that for the production of hyperthermo-active substances the integrity of the nervous system is necessary. The facts discovered by the author have a great deal of importance and permit the following conclusions to be drawn: In the struggle against high temperatures, the thermo-active substances play a predominating rôle. The method by which the thermo-inhibitory substances operate is explained as follows: Accompanying the lowering of the bodily temperature, it has been seen that there is an increase in the synthetic processes of the organism, such as the increased formation of glycogen. The freezing-point of the blood also rises, indicating a greater molecular concentration; that is, a diminution in the number of ions in the blood. These synthetic processes, which are necessarily accompanied by a diminution in the number of molecules of the blood, since the simple ones are built up into more complex ones, are therefore also accompanied by a transformation of some of the heat of the body into latent potential energy. This change of the manifest heat into potential energy is called the "endothermic reaction." This represents an admirable economic disposition in the organism. At the same time that the bodily temperature is lowered, there is a rebuilding of the tissue whose oxidation was the cause of the excessive heat. The choice of people in torrid climes of a diet of carbohydrates instead of one of fats supports this hypothesis, since the carbohydrates, by the simplicity of their constitution and the mobility of their molecules, furnish a more ready material for the synthetic processes of the organism, and therefore furnish a ready means for the cooling off of the body by the endothermic reaction. The thermo-inhibitory substances, by stimulating the production of sweat, furnish another means of lowering the bodily temperature by the evaporation. It has been found that muscles which have been made to contract vigorously furnish substances which, if injected into other animals, increase the production of heat, and that the genesis of these substances is dependent upon the integrity of the central nervous system. Now, it is known that the application of cold to the exterior of the body causes an increase of muscular tone. The conclusion is drawn that the effect of external cold causes reflexly a contraction of the muscles, and it is by means of these contractions that substances are formed which have the power of accelerating the oxidative processes with a resulting thermo-genesis. The muscular origin of the thermo-active substances indicates that the muscular apparatus represents the heat-regulating mechanism of the animal economy *par excellence*.

OBSTETRICS AND GYNECOLOGY.

Vaginal Hysterectomy for Cancer of the Cervix in the Gravid Uterus.—In cancer of the cervix in pregnancy the interest of the fetus, as well as that of the mother, is to be considered. The fetus is constantly threatened by abortion, which may be due to hemorrhage, or by the progress of the rapidly developing neoplasm involving the body of the uterus. The development of cancer is more rapid in the soft and vascular tissues of the genitals during pregnancy, therefore if the pregnancy goes to full term the consequent dystocia endangers the fetus. A. COUDAMIN (*Annales de Gynecol. et d' Obstet.*, March, 1905) reports 30 cases which show that we may expect good results if the patient is operated on sufficiently early, and quotes statistics to show that the fetal mortality is 25 per cent. to 30 per cent. in cases allowed to go to term. In 71 cases already reported 11 had had no recurrence after four years, and were thus considered cured. Although the results are less satisfactory than where the disease is not complicated by pregnancy, they are not sufficiently bad to warrant the sacrifice of the mother for a fetus whose viability is uncertain. During the first six months of pregnancy, with an operable cancer of the cervix, radical operation should be performed at once. After the sixth month the problem is more complex because the fetus is approaching the age of viability and its interests must likewise be considered. If the cancer is seen early the surgeon may wait a month or six weeks for a viable child, but if the neoplasm has already advanced it should be operated on at once, sacrificing the interests of the child to those of the mother. An anesthetic may be of great use in determining the extent of the neoplasm. At the eighth month the child is viable, and an abdominal Cæsarean section should be performed, followed at once by an hysterectomy. After the eighth month vaginal Cæsarean section should be the exception and reserved for those cases where the fetus is very small. The contra-indications for operation are the same as those for a non-pregnant uterus. Any invasion of the parametrium would not justify a vaginal hysterectomy, as interference in these cases is likely to be followed by a recurrence. In such cases palliative treatment should be employed. In cervical cancer coincident with pregnancy the vaginal hysterectomy is no more difficult up to the sixth month than when uncomplicated by this state, there being compensation for the increase in size of the uterus in a more easily dilatable way of access, more elongated uterine ligaments, which permit more easily the descent of that organ. The uterus may be emptied first by making an incision in the median line, rupturing of the membranes and delivering the fetus. Another advantage of the route is that the limits of the neoplasm may be better appreciated and the incision made well outside of the cancer zone. The lessened risk of infecting the peritoneum from the cancerous stump speaks also in favor of the vaginal route. The vaginal hysterectomy, without preliminary incision of the posterior and lateral culs-de-sac, may be performed as follows: (1) Excision of the salient parts of the cancerous growth, followed by use of Paquelin cautery or a strong caustic to the cut edges. The anterior lip of the cervix is then seized and drawn well downward and forward. (2) The anterior vaginal cul-de-sac is incised on the anterior lip of the cervix and the tissues separating the vagina from the bladder liberated. (3) An incision following the median line of the anterior lip of the cervix is continued along the anterior wall of the uterus, the edges of this cut are held open by forceps which are advanced as the incision is carried higher up. The membranes are ruptured as soon as reached, the child is extracted, usually by version. The median incision is continued upward till the fundus uteri can be delivered into the vagina. Bleeding is easily controlled in this procedure. (4) Large curved clamps are placed upon the broad ligaments from above downward which meet at the level of the posterior cul-de-sac. (5) The broad ligaments and the posterior vaginal wall are cut within the clamps. These clamps may be left in place forty-eight hours or replaced by ligatures. An advantage of the procedure is the ease of hemastosis and small loss of blood during the operation. It avoids the incision of two vascular parts, the lateral cul-de-sac and the point of union of the lateral with the anterior cul-de-sac. When the seat of the cancer is on the posterior lip it frequently extends to the posterior or lateroposterior vaginal walls. In such a case the wall should be separated from above downward and the entire cancerous mass removed *in toto*. The objection to this operation is that when the neoplasm is on the anterior lip of the cervix and extends to the vaginal mucous membrane it is inapplicable. But when the mucous membrane is invaded to a slight degree it will be possible to incise in front of the tumor and reach the anterior peritoneal cul-de-sac. More advanced lesions involving the cellular tissue separating the bladder and cervix contraindicate any attempt at vaginal hysterectomy, since a portion of the bladder must be resected near the ureters, which would be particularly hazardous. In such a case death would follow more rapidly than if the growth were not interfered with.

Paravaginal or Abdominal Operation in Carcinoma of the Uterus.—In a discussion on the relative merits of the two operative routes, G. GELLHORN (*St. Louis Med. Rev.*, June 3, 1905) comes to the following conclusions: (1) The radical abdominal operation, as far as the routine ablation of the lymphatic organs of the pelvis is concerned, has thus far failed to yield the desired results. (2) On the other hand, the eradication of the parametria has been found to reduce greatly the percentage of cures (3) Consequently, the simple abdominal and vaginal operations which do not include this procedure must be discarded. (4) For the extirpation of the parametria, Wertheim's method is the best of the abdominal operations. (5) It has, however, certain advantages compared with the paravaginal method of Schuchardt. (6) Considering the encouraging results of igniextirpation, a combination of thermocautery with paravaginal extirpation gives promise of further improvement in operative results.

Sudden Death During or Immediately After the Termination of Pregnancy or Operation on the Pelvic Organs in Women.—E. P. DAVIS (*St. Louis Med. Rev.*, June 17, 1905), from a study of twenty-five cases, arrives at the following conclusions: (1) That sudden death may occur after abortion, labor or operation from undemonstrable causes. (2) Death may follow abortion, labor or operation, from the rapid formation of a pulmonary embolus. Pulmonary embolism may develop before the placenta has been delivered, or when delivered by Credé's method. It is not frequent after Cæsarean operation or after the more complicated obstetrical operations. Predisposing and probably exciting causes are bronchial infection and abnormal conditions of the blood. (3) Primary thrombosis and secondary embolism may cause death after the termination of pregnancy or operation. Causes: pre-existing infection, mechanical violence, altered con-

ditions of blood serum, and lesions in the walls of the valves. (4) Sudden death occurs in parturient women and after operation from reflex nervous shock without assignable cause; also from disease of the thoracic viscera, from infection of the placental site and other obscure conditions.

PATHOLOGY AND BACTERIOLOGY.

Agglutination of Typhoid and Paratyphoid Sera.—The observation has frequently been made that the serum of patients suffering from typhoid will also agglutinate the paratyphoid germs, and it may be difficult to say whether the patient suffers from typhoid or paratyphoid. D. Korte and B. Steinberg (*Münch. med. Woch.*, May 23, 1905) point out the necessity of always determining the highest dilution in which agglutination will still take place. It may also happen that the typhoid bacillus will not be agglutinated by typhoid serum in low dilution, while with high dilution clumping will be perfect. In a case mentioned a dilution of 1 to 80 was tested against both typhoid and paratyphoid. The latter was clumped actively, the former not at all. A diagnosis of paratyphoid therefore seemed probable, yet on further testing the serum, active agglutination was obtained with typhoid at 1 to 640, while the paratyphoid was not at all agglutinated in this dilution. The microscopic test is always more delicate than the macroscopic.

The Bacillus Coli Communis as a Cause of Septicemia.—The rôle played by the *Bacillus coli communis* leads T. G. Moorehead (*Practitioner*, June, 1905) to consider whether or not it is ever the cause of septicemia. It has been long known that the bacillus has pyogenic properties, and while its presence is always suspected in abscesses near the alimentary canal, the author considers that there are cases in which the symptoms point to a sapremia being present, due to the absorption of the colon bacillus toxins, and that also there are cases in which the organism assumes a septic or septicemic rôle, as distinct from a pyogenic one, and produces an actual septicemia. He bases this statement upon the following facts: (1) Its known power of producing a septicemia in animals, and in connection with this fact it may be stated that Lésage and Macaigne have shown that the organism, isolated from the intestines in cases of diarrhea, is much more toxic than that obtained from the healthy alimentary canal. They, in fact, believe that the bacillus of the normal intestines can only exert a local pyogenic toxicity, while that from diseased intestines has septicemic powers. It may also be stated that Ferranini has shown that the *Bacillus coli communis* exerts a much more powerful effect on ill-fed animals than on well-nourished ones; that, in fact, its toxicity increases with the diminution in resisting power of its host. (2) Cases in which the *Bacillus coli* was found in the blood during life. (3) Cases of general sepsis reported by Schenck, Gebhard, Kerr, Eisenhardt and others, in which the *Bacillus coli* was found universally throughout the body in pure culture after death, and along with these may be mentioned Kamur's work on Winckel's disease. (4) The occurrence under natural conditions of infectious diseases in the lower animals apparently caused by the colon bacillus. The power of the *Bacillus coli*, in modifying the course of, or preparing the way for, other forms of septicemia, is indicated by the following facts: (1) Motta Coco, experimenting on animals, found that the *Bacillus coli* assumed very virulent properties in company with streptococci; (2) Widal and Besançon, working with the streptococci of the mouth, ascertained that many which were harmless when injected alone into animals became virulent when mixed with the colon bacillus; (3) Blasi and Russo-Travali reported, in 1896, a case of mixed infection with the *Bacillus coli* and diphtheria bacillus, and found experimentally that a mixture of the two bacilli was much more poisonous than either organism singly. Schenck also reported, in 1898, a case of combined coli and streptococcal infection, and makes the statement that the *Bacillus coli* is always very virulent when combined with streptococci, while, as showing that the opinion that the *Bacillus coli* might combine with other organisms to produce a septicemia has been long held, it may be added that in 1896 Sims Woodhead said that he believed many so-called streptococcal infections to be really secondary to colon infections. From the above reasoning the author concludes that the existence of a *Bacillus coli* septicemia is probable.

Vaginal Cysts.—From an examination of 53 specimens of vaginal cysts, T. S. Cullen (*Bull. Johns Hopk. Hosp.*, June, 1905) classifies them into the following varieties from an etiological standpoint: (1) In 26 the origin was clearly the result of a perineal tear or a perineal operation. (2) Four seemed to originate from vaginal glands. (3) Eleven were apparently derivatives of Gärtner's duct. (4) Three were situated near the external orifice of the urethra. (5) In eight it was impossible to determine the mode of origin. The inclusion cysts are due to small portions of the vaginal mucosa being included in the stroma. Such cysts are small, and are naturally found in the posterior or in the lower lateral wall of the vagina. In three of the cases of this series the cysts probably originated from the vaginal glands. In 11 of the cases a dilataton of a portion of Gärtner's duct appears to have been responsible for the cyst. The most common situation was in the anterior vaginal wall just behind the urethral orifice. In two cases it was probable that the cysts owed their origin to urethral glands. Several of the unclassified cysts probably had their origin from Gärtner's duct. The author considers that various gas cysts which are at times found in the vagina of pregnant women are analogous to those found in the liver and other organs, due to gas-producing microorganism, and suggests as a causative factor the *Bacillus œrogenes capsulatus*. In countries where the echinococcus is prevalent, some vaginal cysts may be due to them.

Pathology of Gastric Ganglia.—If dogs are treated with a dilute mixture of ethlyic and amylic alcohol, gastritis of varying severity may be induced. In the most acute type, L. Amato and P. Macri (*Virchow's Archiv*, Vol. 180, No. 2), found marked hyperemia, involving all the layers of the stomach and extensive changes in the nerve-ganglia (chromatolysis, vacuolization, karyolysis, atrophy). In the less acute types, the hyperemia was less advanced, particularly in the muscular layers, but both here and in the subacute cases the nerve-cells were seriously altered. In man the following changes could be detected: in pyloric cancer, the ganglia were either destroyed directly, or else the seat of interstitial changes of advanced degree. Chronic interstitial and parenchymatous inflammation was also found in the various types of chronic gastritis. The poisons which set up the gastritis probably have a particularly strong affinity toward the nerve-cells, and there can be no doubt that the changes in the latter are responsible for many of the symptoms.

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A NEW HOPE IN THE BATTLE WITH QUACKERY.

FROM its earliest inception the medical idea has been a reaching for truth and a denial of falsehood in the sphere of physiological functioning. Since the days of Hippocrates the medical profession has been fighting superstition, within its ranks as well as without. Now that a wider education is in a small measure enabling the masses to reason instead of following blindly, it would appear that there is less hope than ever of dealing the death blow to quackery; for this very reasoning power, this newly awakened belief in one's ability to choose and discriminate has been seized upon by the modern descendant of the ancient quack, and the specious appeals to the patient's intelligence which appear in the advertisements of the daily papers are far more seductive than the cruder forms of quackery that advertised universal panaceas. The survival of the unfit goes hand in hand with the survival of the fit.

The blatant contempt which the quack expresses for what he calls the physician's obstinacy and indifference to all but his own views prevents the ethically-minded among us from replying in kind. We cannot place ourselves in the quack's shoes and denounce others while insisting on the superiority of our own treatment, and they know it, such knowledge having ever constituted stock in trade. Hence the quacks, and by these we mean the propagators of every form of cure that has the credulity or ignorance of patients for its basis, the quacks skilfully put forth practically all the medical literature that meets the eye of the average layman.

It is therefore with a feeling of positive pleasure that we find published in the *Popular Science Monthly* for September a paper on quackery, read before the Yale Biological Club. It is a layman's study of a layman's grievance. It is a comprehensive but brief protestation that such a state of things should exist, that there should be twenty thousand quacks in New York City to six thousand physicians, that quackery in such a city as Berlin should have increased 1,600 per cent. in thirty years, and that the vendors of quack medicine should be among the largest customers of wineries and distilleries.

"Given," says the author, "on the one hand, the limitations of scientific medicine, the pain and dread of disease and the power of auto-suggestion, and on the other hand, depraved humanity, hard-driven in its struggle for existence, but cunning in the knowledge of men, and you have the essential parts which, with a few minor pieces, make up the smooth engine of quackery. Psycho-therapeutics and knowledge of human nature constitute the quack's entire outfit; all he really needs is moral atrophy and the instincts of a cheap drummer."

Clearly and logically the fraud perpetrated upon the people through the medium of the daily papers is exposed. "With a few notable exceptions, such as *The Outlook, Life, Ladies' Home Journal, The Evening Post* and a few others, the whole secular press unblushingly sprinkles its columns with the charlatan's cards."

Very cleverly is it hinted that "it is not bare accident that America is at once the home of quackery and the home of the free," for the passion for personal freedom is, as one writer has savagely described it, the attitude of "jealously safeguarding to every citizen the sacred right of going to the devil in his own way."

We as physicians have for the most part resigned ourselves to helpless silence, for whenever we attempt to raise our voices, even the disinterested have seen an attempt at extending the "Medical Trust." But now that the public has been given rope enough there is a possibility that they may suddenly realize that there is sufficient with which to hand itself.

It is perfectly true that "quackery is a seated evil which the community in self-defence ought to weed out." Such papers as have not prostituted themselves should agitate the matter. Mr. Bok has made a strong stand, and in the last issue of the *Ladies' Home Journal* has contributed a forceful page, silent yet emphatic, as to the frightful extent of the evils in question. Other editors, it is suggested, would secure more of the necessary sensational effect by the free exploitation of the ills resulting from the use of patent nostrums than they could from exposing a gas or a beef trust; and once the public realized that they were being duped, and could only be kept in that state of mind, they would have at least a different point of view of the men who advertise their prowess in the healing art.

In Germany the public-spirited men of all professions have organized a systematic campaign against quackery. Is it possible for us to do the same? Cannot we at least endeavor to bring the matter before the public school authorities as a subject for some of the free lectures, and one deserving a small place in the curriculum along with the matter devoted to the dangers of alcohol and tobacco?

The hope lies in the layman who is the sufferer. We have known for centuries that he has been duped and defrauded, but he has thought our warnings were made purely in self-interest. From the tenor of the address referred to and other signs of the times, we hope that the worm is nearly ready to turn.

THE AMBULANCE SERVICE OF THE AMERICAN METROPOLIS.

In the evolution of the modern municipality the inauguration of a highly efficient organization for the safeguarding of life and health is, strangely enough, a very late development.

The government first concerns itself with the protection of private property, and to this end a powerful police force, at least potentially, and a magnificent fire department are evolved. In the meantime the increase and congestion of the population necessitate a closer regard for the health and comfort of the masses. Hence, in due time, are established large public hospitals, alert Boards of Health, sanitary water-supplies, small parks, scientific methods of street-cleaning, etc. Far-seeing publicists are beginning to realize the economic gain resulting from governmental expenditures that tend to diminish disease and save life.

In every community there is a body of citizens who are better adapted even than medical men to point out the deficiencies in public systems of relief. These are the practical sociologists. The physician is too deeply engrossed in concrete instances of disease and suffering to note the general aspect of sanitary problems as well as the busy charity-worker or the interested citizen. It is quite natural then that a timely suggestion for remodeling and improving the ambulance service of New York should come from a layman. At the recent Portland Conference of Charities and Correction Mr. Nathan Bijur referred to the poor ambulance service of the metropolis, and advocated the appointment of a commission to investigate the subject. He suggests that temporarily a central ambulance bureau might be looked after by the Police Department, which, working in connection with the various hospitals, would be able to render speedy relief. A system of instant response to calls for aid, such as the splendid Fire Department of New York affords, is imperative. The solution of this problem is rendered difficult by the irregular distribution of hospitals over the city.

It does not require a long residence in the heart of the metropolis to become familiar with the inadequate facilities for rendering first aid to the injured. An enumeration of a few concrete instances will serve to emphasize the truth of this statement.

A child is run down by a trolley-car. Grabbed up by some spectator, and followed by a sympathetic crowd, it is carried to the corner drug-store. A police officer has probably arrived on the scene by this time and, calling up Police Headquarters, asks that an ambulance be summoned. Accordingly one is dispatched from the nearest hospital that maintains an ambulance service. In some parts of the city the nearest hospital may be located a distance of several miles. In the meantime the victim either receives no care or else must submit to the crude ministrations of the amateur surgeon. Rarely is any effort made to summon a nearby physician, for no one cares to assume the responsibility of paying the fee.

Not long ago a lady fell while alighting from a Broadway car. She was carried to the sidewalk, where she lay unconscious, surrounded by the usual crowd, in the center of which stood the stalwart policeman who had already telephoned for an ambulance. A physician who at that moment was passing by edged his way through the

crowd. His proffer of aid was insolently refused by the officious guardian of the peace, and as a reward for his pains he was actually told to mind his own business.

In the eyes of the public the ambulance surgeon is a sort of hero. The prestige conferred by the hospital uniform and the settled air of nonchalance with which the young tyro in surgery usually lies outstretched on the rear seat of the ambulance have a tendency to create an exaggerated opinion in the popular mind of his attainments and skill. In many instances the junior interne who responds to the call is fully deserving of this good opinion. It is needless to refer to the numerous examples recently recorded in the press of personal daring and self-sacrifice displayed under the most trying circumstances by the young surgeon. Yet hardly a week passes but some instance of poor judgment or reckless self-confidence on the part of the embryo surgeon is brought to one's attention. Many a time in cases in which the physician of mature mind and experience would hesitate to make a diagnosis, the ambulance surgeon is quick to decide that the case is one of alcoholism, shamming, hysteria, etc. The unnecessary frequency of these mistakes has naturally called forth the indignant criticism of the public.

There is a class of cases which, while not particularly urgent, nevertheless require prompt removal to a hospital. It is frequently difficult to locate a hospital that is willing to admit the patient, and under these circumstances days may elapse before the patient is removed. An instance of this is afforded by the following experience in the Borough of Brooklyn during the recent epidemic of meningitis. A physician desired to have a child under his care, suffering from a severe form of this disease and unable to receive the proper care amid its poor surroundings at home, removed to a hospital. After communicating in vain with over half a dozen hospitals, which would not admit a case of meningitis, he finally telephoned to the King's County Hospital, corresponding to Bellevue in Manhattan; he was told that the case would be admitted, but that an ambulance could not be sent that day, as it was Sunday. In fact, a period of forty-eight hours elapsed before the ambulance arrived.

The needless delays, the unnecessary mistakes, the fear displayed by the ambulance surgeon of being harshly criticized by his superiors for bringing an unsuitable case to the hospital, the summoning of an ambulance from a distant hospital when one from a nearer hospital might be obtained, and the lack of sufficient ambulances to supply the large territory of New York—all these are elements which require attention in reforming and perfecting our ambulance service. A few of the broad features of such an improved system might here be considered.

First, there should be a central bureau, as suggested by Mr. Bijur, which would receive all calls and would cooperate with the various hospitals. It is questionable whether anything would be gained by maintaining this bureau in connection with the Police Department. The high degree of supervising efficiency demanded, the utmost familiarity with the conditions in the various hospitals, the preservation of records, the investigation of complaints, and the preparation of periodical reports showing the work accomplished and the various needs of the system all require the maintenance of an independent branch of the public service, which would be as reliable and as ready to meet every demand for instant aid as the Fire Department.

Second, the number of ambulances should be increased, and in sections of the city that are remote from a public hospital and in which the population is large enough to warrant such relief, ambulance stations should be established. In lieu of the latter, local physicians might be appointed in various parts of the city to respond in case of emergency, and to care for the injured person until the ambulance arrives, or to remove him, if necessary, in a hired vehicle to the hospital. In fact, a system of public compensation for services that might be rendered by any local physician called to the scene, might be devised. These measures would obviate the painful delays and unnecessary scandals associated with the crudity of the present system. The precarious conditions of life in a large city, particularly one like New York, which is continually in a process of transformation, with its congested traffic, uptorn streets and innumerable other dangers, demand that a fair assurance of quick relief be accorded to the citizen who may be injured or suddenly stricken in the street.

Cholera at Manila.—Cholera has appeared in Manila in a sporadic form. One American woman and a man died on August 25. Two privates at Camp McKinley have also died of the disease. The surgeons of the Board of Health anticipate that the appearance of the disease will not have serious results.

ECHOES AND NEWS.

NEW YORK.

Cerebro-Spinal Meningitis.—The report of the contagious diseases in New York last week shows that cerebro-spinal meningitis is still present in the city. There were 14 new cases last week and 15 deaths. This is the time, if ever, while the new cases are so few, that isolation may be effectually practised and an attempt made at minimizing the danger of the recurrence of the disease that otherwise will be sure to take place next winter.

Typhoid Fever Situation.—There were 324 cases of typhoid in Greater New York last week. Of these cases 210 were in Brooklyn, 95 in Manhattan, 12 in the Bronx, 3 in Queens and 4 in Richmond. In the week before last there were 252 cases, of which 150 were in Brooklyn, while three weeks ago there were 259 cases. These figures would seem to indicate a big increase last week, but the Health Board officials say that of the 324 cases reported, 110 were old cases that had not been reported by the physicians, who have been very negligent about the matter. As a matter of fact, most of these 110 cases should be included in the reports of the previous two weeks. That would show that the disease is on the decrease, and this the department officials think is actually so.

Health Department Laboratory.—The fine new laboratory building of the Health Department will be opened and occupied in the very near future. This ornamental building has been in process of construction some time at the foot of East Sixteenth Street. It is attached to the old Willard Parker Hospital for contagious diseases, and simultaneously with its erection, several adjoining buildings have been put up, one a new scarlet fever hospital, and the other an administration building for the executive officers of the contagious disease hospitals, and for the accommodation of physicians and nurses attached to these hospitals. The laboratory is one of the finest municipal institutions of its kind. It is almost axiomatic to say that in all progressive cities it is recognized that the value of a Health Department is its ability to safeguard against contagious and infectious diseases and this is largely dependent on the efficiency of its bacteriological workers. New York City was among the first to establish a bacteriological laboratory. From an insignificant back room with a microscope and some cultures, the institution will be housed in an imposing six-story building. Every floor has been constructed so as to be adapted to research or chemical work. The laboratory is being thoroughly equipped. The chemical laboratory will be moved from its old quarters in the Department of Health Building, at Sixth Avenue and Fifty-fifth Street. Upon the methods of New York City's bacteriological laboratory have been modeled those of many similar laboratories in the United States and other countries. The first impetus given to the establishment of such an institution was in 1892. Cases of cholera had been brought to this port, and there was great public apprehension manifested. Dr. Hermann M. Biggs, the pathologist of the Health Department, urged upon the department the necessity of bacteriological diagnosis as the only certain method of identifying cases of this disease. After doing some singularly successful work in diagnosis of cholera, the laboratory began further investigations. Its facilities were cramped. Housed, as it has been, in a part of an old building at the foot of East Sixteenth Street, it could not undertake too ambitious a program, for want of adequate equipment. Nevertheless, it made great strides in research work. In 1893 it investigated the bacteriology of diphtheria, and adopted methods for the bacteriological diagnosis of that disease. In the next year, it began work upon the bacteriology of tuberculosis, and also established the necessary plant for the production of diphtheria antitoxin. The free treatment of diphtheria in tenement houses, and the free distribution of antitoxin were begun in 1895. The effect of this work was instantaneous. The mortality from diphtheria was greatly reduced. In 1894, the number of deaths from diphtheria per 100,000 of population, in Manhattan and the Bronx, had been 158.4. In 1895, the number went down to 105.2; the next year to 91.2, and yearly has been proportionately going down. For the seven years before the free distribution of antitoxin in diphtheria cases was begun, about 37 per cent. of the cases in Manhattan and the Bronx were fatal; since then the proportion of fatal cases has been less than 11 per cent. The laboratory has also carried on investigations of the bacteriology of typhoid fever, rabies, and dysentery, bubonic plague, and other diseases; and is now, among other work, investigating the bacteriology of cerebrospinal meningitis. The research laboratory has done other important work. It found out from its studies that the virus of smallpox and vaccine could not be of a bacterial nature. It has studied tuberculosis cultures obtained from human beings and cattle. It has made great progress in methods of disinfection. One of its staff devised a machine by which formaldehyde gas could be generated with great rapidity and cheapness. These machines were installed upon the boats and at the ambulance stations of the Health Department. The laboratory prepares its own material for the enormous number of vaccinations the department makes yearly. This branch of the Health Department necessarily has always been in the hands of scientific men, and is not affected by political influences or changes.

PHILADELPHIA.

No New Case of Diphtheria Reported.—The fact that no new case of diphtheria was reported for last Wednesday has created some interest at the Bureau of Health. According to one of the inspectors, such an instance has not occurred in seven years.

To Investigate the Epidemic of Typhoid Fever.—Dr. F. C. Johnson, chief medical officer of the Department of Health, of Philadelphia, has been detailed by Dr. Dixon, Health Commissioner, to investigate the epidemic of enteric fever at Dundaff, Susquehanna County, and to limit its spread.

Antitoxin to Be Distributed Free.—Dr. Dixon, Health Commissioner, has decided to create two stations in each county of the State at which diphtheria antitoxin can be obtained free upon the presentation of a doctor's certificate. This step is regarded by physicians as a very important factor in the reduction of the mortality of this disease.

New Milk Law Necessary.—As the milk law stands at the present time it is necessary to prove that the dealer has personal knowledge that the milk which he is selling is impure; the food and dairy agents have found it very difficult to convict under those conditions and as a result have ceased to work. It is to be hoped that the Council will think it necessary to draw up and pass a bill which will en-

able inspectors to bring the dealers to a wholesome respect for authority.

Smallpox Hospital Destroyed.—The first move to occupy the new smallpox hospital was evinced by the burning of several of the buildings, once a part of the Municipal Hospital. Should more cases of smallpox be received than can be accommodated in the buildings remaining, they will be taken to the new hospital, although not completed. It has been suggested that the new hospital may never be used for the purpose designed, provided that these patients can be housed in temporary sheds, which can be destroyed from time to time.

Fire Destroys Part of the University's Buildings.—As a result of a fire the University of Pennsylvania has sustained a loss of $40,000. The damaged buildings are in such condition, however, that repairs can easily be effected; at first it was thought that the microscopes and other scientific apparatus were destroyed, but investigation showed that the anatomical and surgical preparations which were lost can be replaced without much difficulty. The cause of the fire is not known, but crossed electric wires are thought to have given birth to the flames.

Additional Precautions Against Yellow Fever.—Dr. Henry Heller, of the State Quarantine Board, has adopted a method similar to that instituted by Dr. Quitman Kohnke, health officer of New Orleans, which consists of allowing barrels of stagnant water to stand around the quarantine station, assuming that the mosquitoes on board vessels will make for these to deposit their larvæ on the stagnant rain water. The barrels and their contents can be destroyed from time to time. The quarantine hospital of this city, and all of its beds, are screened so that it is almost impossible for mosquitoes to reach the patients, should they be attracted from the vessels by the stagnant water, thus provided for them.

Sanitary Expert Chosen.—Dr. Samuel Dixon, Health Commissioner, has announced the appointment of F. Herbert Snow as head of the sanitary engineering division of the Department of Health. Mr. Snow is a pioneer in the work of devising sanitary systems of sewage disposal, and Dr. Dixon believes his experience and his knowledge will be of inestimable value to the department in its dealings with municipalities and corporations to prevent and to remedy the pollution of the State water in the most efficient and economic manner. Mr. Snow is a member of the American Society of Civil Engineers, has had twenty-three years' experience, and has served more than fifty municipalities as consulting sanitary engineer. Atlantic City is about to rebuild and extend its drainage system under the plans mapped out by Mr. Snow.

Russell's Vegetable Compound as a Cure for Tuberculosis.—While many of the physicians of this city are sceptical in regards to the curative value of the compound, Dr. J. Solis Cohen has determined to give it a fair trial at the Chestnut Hill Hospital for Consumptives. He has no knowledge of the compound, but he has used Dr. Russell's emulsion of mixed fats extensively, and is able to say with good results. Vegetables are prescribed extensively by all physicians, but the mere fact that they are cooked may make them less efficacious. The *Bulletin*, in an editorial commenting upon the value of the compound, suggests that, owing to the fact that we so often see temporary improvements in patients who have at different times tried the "cures" for consumption, it would perhaps be better to wait longer than six months before expounding its value as a cure.

CHICAGO.

The Chicago Health Department Laboratory.—In his annual message to the City Council, April 10, 1905, Mayor Harrison showed the Health Department Laboratory to be a "money-maker," turning into the city treasury annually from $40,000 to $50,000 more than the cost of its maintenance, and urged upon the Council that some share of this excess, if not every dollar of it, should be used for its further development. The laboratory is more than a "money-maker!" Its value to public health and life in its supervision of food supplies—milk, cream, meats, water, ice, etc.—in its safeguarding against impure vaccine, inert antitoxin and other remedies; in its assistance to physicians in the diagnosis of the contagious and infectious diseases, and in many other ways, cannot be estimated in dollars and cents.

Pharmacists Pass a Resolution for New and Drastic Legislation.—The twenty-sixth annual meeting of the Illinois Pharmaceutical Association was recently held in this city. After a vivid presentation of some of the present evils of the pharmaceutical profession by George P. Engelhardt, Editor of the *Western Druggist*, the following resolution was adopted unanimously: *Resolved*, That we favor such legislation as shall require the proper public officer, in case of death ensuing from disease, or otherwise, under medical attendance when the physician has himself dispensed his own medicine, shall issue the death certificate instead of the attending physician, as now permitted by law. A second resolution was also unanimously adopted. This resolution was as follows: *Resolved*, that we deem the dispensing of pure drugs vital to the life and welfare of pharmacy and therefore approve any and all measures calculated to suppress the adulteration of drugs and medicines, and we most earnestly commend the relentless prosecution by the proper authorities of all druggists and others who shall be guilty of these subversive practices.

Tetanus Successfully Treated.—Dr. John B. Murphy reports the case of an eight-year-old boy who was admitted to the hospital with trismus, some contraction of the neck muscles with opisthotonus, seven days after cutting his foot on a piece of dirty glass. Under anesthesia some glass and pus were found in the foot wound, but cultures did not reveal any tetanus bacilli. The convulsions continued, so that on the following day he was given three full doses of antitetanic serum without effect, the convulsions becoming almost continuous. Two days later 16 c.c. of cloudy cerebrospinal fluid were withdrawn by lumbar puncture, and through the same needle there were injected 3 c.c. of the following solution, sterilized by boiling:

B-eucaine	0.09
Morphine sulphate	0.02
Sodium chloride	0.18
Distilled water	105.00

The patient slept four hours following the injection, and through the night slept one and one-half hours at a time. The spasms became shorter in duration, and there were only eight in the succeeding twenty-four hours. Then 15 c.c. of cerebrospinal fluid were drawn off and 4 c.c. of the above solution injected. Similar injections were made daily for six days, then on alternate days for six days. The spasms gradually ceased, the trismus relaxed and the boy was discharged cured three weeks after ad-

mission, or four weeks from the date of injury. Dr. Murphy considers eucaine much less dangerous than cocaine, and was particularly struck with the muscular relaxation that followed the morphine eucaine injections.

To Aid Insane Consumptives.—It has been decided to fight consumption in the insane asylums of Illinois, and two cottages for the isolation of tuberculous patients are now in the course of construction at the Watertown Hospital. These structures will effectually aid not only in the general care of the 1,200 patients, but in more humane treatment for those who in addition to their mental affliction are victims of the dread disease. The cottages were not provided for in the State appropriation, but this additional building was made possible by the economical expenditure of the general funds of the institution, it is said. One of the two cottages will be for male patients and the other for female. While the proportion of the tuberculous patients in insane hospitals is not high, the white plague is manifest sufficiently to warrant precautionary steps for the isolation of the disease. Every modern preventive and aid will be employed at the Watertown institution. The buildings will be well ventilated and absolutely sanitary. On all sides of each cottage will be a broad porch. Sections of the porches will be screened off so that the sufferers may sleep in the open air and gain the benefit of outdoor life. For sleeping outdoors in winter, provision will be made for tempering the extreme cold. A room fitted up in tiling will be used for spraying patients, and through the use of a huge atomizer the air will be impregnated with the fumes of Norway pines. Part of the porch will be enclosed with glass to gain the violet light which has proved an aid in the treatment of tuberculosis. A tent colony will be provided. Large yards will surround the cottages and provision will be made for six to ten tents in each. The amusement hall now being built at Watertown has dimensions 100 by 300 feet and is capable of seating 1,200 people, the present population of the patients. It will have four bowling alleys, billiard and pool tables, a swimming pool and a platform eighty feet wide. There will be a wide area within for general amusements for the patients. This hall is to be a retreat for the patients in stormy weather and entire wards will be entertained at one time.

Poisons and Druggists.—More care and discrimination in the sale of poisons and harmful drugs are necessary in this city. At present the conditions governing the drug traffic are notoriously lax since it is possible for a child to purchase morphine or cocaine wherever a druggist is unscrupulous enough to sell it can be found. To the discredit of the pharmaceutical profession it must be said that too many of these unscrupulous druggists abound. Realizing the need for maintaining public confidence in the profession, the Illinois Pharmaceutical Association is beginning a campaign for the passage of a law that will make the order of a responsible physician virtually necessary before harmful drugs can be purchased. This law, if effectually enforced, will undoubtedly serve to keep many people from obtaining drugs they had better be without. But if the druggists would but see and acknowledge the fact they have in their own hands the power to do much to remedy the drug evil in Chicago. The *Chicago Daily Tribune* in commenting on this proposed law editorially remarks that: "It depends on a druggist whether a man, woman, or child can buy harmful drugs of him. In the better class of drug stores at present it is impossible to buy poisons without a physican's order. The reason why it is impossible to buy them at all without such an order is that all druggists have not the same high code of business morals. The remedy is obvious. The druggists must elevate the standard of their profession. So long as there are druggists who will take the drug-fiend's money, so long will the drug evil exist. When no druggist sells drugs except on a carefully investigated order it will cease. By adhering themselves strictly to the first principles of humanity and decency, by exposing those who are guilty of improper drug selling, and by prosecuting them with a relentlessness that will affect reform or drive them out of the business, the better class of druggists will more quickly and more effectively rid their profession of an odium and the public of a menace to health than by working for the passage of laws whose efficacy depends upon the manner in which the municipal authorities enforce them. A more stringent law is needed, but that alone will not suffice."

GENERAL.

Bubonic Plague in Panama.—A fatal case of bubonic plague in Panama was reported to the State Department Monday last. Some months ago one death by bubonic plague was reported from the Isthmus.

The American Roentgen Ray Society.—The sixth annual meeting of the American Roentgen Ray Society will be held at Johns Hopkins Hospital, Baltimore, September 28, 29 and 30. The Stafford Hotel has been selected as headquarters. The program includes foreign as well as American workers in this special department of medicine. All regular practitioners are eligible to membership, and are invited to attend the scientific sessions and view the exhibition of apparatus. Further information can be obtained from Dr. Russell H. Boggs, Secretary, Empire Building, Pittsburg, Pa

Mississippi Valley Medical Association.—At the next meeting of the Association, to be held at Indianapolis, Ind., October 10, 11, 12, the annual addresses will be delivered by Dr. Arthur R. Edwards, of Chicago, and Dr. W. D. Haggard, of Nashville, Tenn Dr. Edwards has chosen for the subject of his address, "Certain Phases of Uremia; Their Diagnosis and Treatment," and Dr. Haggard will discuss in his address, "The Present Status of Surgery of the Stomach." In addition to these addresses there will be the annual address of the President, Dr. Bransford Lewis, of St. Louis. A cordial invitation is extended to every physician in the valley to attend this meeting, for which a large number of interesting and valuable papers have been promised.

Lectures on Inebriety.—Dr. T. D. Crothers, of Hartford, Conn., Superintendent Walnut Lodge Hospital, has accepted an invitation to deliver the first oration in the Norman Kerr memorial lectureship, at London, Eng., October 10, 1905. Dr. Kerr will be remembered as an eminent London physician who has made a special study of inebriety, alcoholism and other drug disorders. He has written several excellent books on this subject, and has been instrumental in securing the enactment of laws for the control of inebriates and the promotion of hospitals for their care throughout Great Britain. He founded the British Society for the Study of Inebriety, in 1884, and this society and his friends have organized

a memorial lectureship for yearly orations on his life and work.

Tropical Medicine School.—Sir Patrick Manson, medical adviser to the British Colonial Office, in a speech before the board of directors of the Merchants' Association of San Francisco, outlined his theory that yellow fever may yet become a source of worriment there in the changed trade conditions which will follow the completion of the Panama Canal. He urged the futility of what now passes as quarantine either in yellow fever or the bubonic plague. Owing to the advantages that San Francisco possesses over London for the study of tropical diseases, an advantage due to the fact that it has a colony of ten thousand Chinese as well as many Japanese, Filipinos and Hawaiians, he suggested that a school should be established here for the study of tropical medicine. Sir Patrick is in San Francisco giving the Lane Lectures this year.

Cholera in East Prussia.—The official *Reichs-Anzeiger* of Monday last said that since August 16 seven cholera cases, three of which were fatal, have occurred in the Weichsel District, East Prussia. Traffic from Weichsel has been placed under medical and police control. Dispatches from Danzig say that the cholera bacillus appears to have spread further than the health authorities on Saturday supposed possible. A raftsman has died of supposed cholera, in the hospital at Bromberg, and two laborers of Fordon who drank of Weichsel River water suddenly became ill. One of them died later, supposedly of cholera. Three rivermen from Galicia have been attacked, presumably by cholera, at Graudenz. Apprehension is felt at Thorn and Bromberg and in the small river-towns, from the Russian frontier to Danzig, although nothing like a panic can be said to exist. The medical authorities are tightening their dictatorship, multiplying the stations along the river to prevent bathing or the use of water in any form, examining searchingly every person complaining of the least illness, and are urging upon all families within the district to use the recognized precautions. These measures have been effective enough so far as Prussian territory is concerned, but the physicians ask each other what is taking place beyond the frontier boundary stones. The water of the River Weichsel flowing out of Russia is contaminated, but no one knows whether few or many cases of cholera exist up the stream, or whether proper precautions are being taken. The situation in East Prussia is compared with that of the United States and Cuba in the case of yellow fever epidemics, but instead of a wide ocean channel flowing between Russia and Prussia, the latter's territory is conterminous, and Prussia is powerless to enforce sanitation over the border.

Thomas Wilson Sanitarium, Baltimore.—The difficulty in establishing the use of cows' milk for infant feeding among the poorer people of the large cities is due to their inability to obtain a supply of good milk at a reasonable price and the trouble of keeping it fresh in their homes. It is a disgraceful fact that much of the milk bought by the poor is inferior in quality, lacks in freshness, is full of dirt and micro-organisms and contains chemical preservations. What the Nathan Straus Pasteurized milk depots are doing for the New York babies is being done for the babies of Baltimore by the milk dispensary of the Thomas Wilson Sanitarium, writes *Charities*. They are now entering upon the tenth month of the second summer of their service, and the results have been exceedingly gratifying. The dispensaries will be maintained throughout the coming year. All the milk is Pasteurized during the warm weather, and it, therefore, keeps sweet for twenty-four hours, even where there is no refrigeration in the homes. The milk is produced at the Burnside Farm, bottled at the Walker-Gordon Laboratory, and contains less than 5,000 bacteria to the cubic centimeter when delivered to the various stations. There are at present five of these milk depots for dispensing at a minimum charge (somewhat less than actual cost) several modifications of milk, suitable for infants during their first year. The charge for a day's feeding for each of the modifications—five to eight bottles, according to the age of the child—is ten cents, payable daily on delivery at the station. This milk is not only for those infants who are already sick or ailing, but it is also, and quite as much, intended for any children whose circumstances prevent their securing a proper diet. An experienced nurse is in charge of each station, and wherever possible she keeps a record of the baby's weight and condition, and where it is desired she will visit regularly in the homes. The first summer five hundred babies received milk through this charity, and the results have been exceedingly gratifying. But four children on the rolls were lost during the winter —three of these from pneumonia and one phthisis. The Thomas Wilson Sanitarium has for many years been maintained each summer at Mount Wilson, on the Western Maryland Railroad, ten miles from Baltimore, where the children of the poor suffering from intestinal disorders have been treated. This year the sanitarium opened June 6, and will continue through August.

Fever Situation in the South.—The yellow fever has apparently improved in New Orleans, while the disease is reported to be gaining renewed energy in Louisiana outside New Orleans. The present total number of cases that has occurred in New Orleans is about 1,700, the number of deaths being about 230. In the city of New Orleans new foci are less numerous, but none the less evident. Surgeon White, Chairman Janvier, of the Citizens' Committee; Dr. Beverly Warner, in charge of the ward superintendents, and Dr. Souchon, President of the State Board of Health, went to Baton Rouge last week for a conference with Governor Blanchard. The trip was made at the suggestion of the Governor, who desired to know at first hand the exact status of all departments of the work. Since the beginning of the yellow fever, the Governor has been unable to put foot in New Orleans. Quarantine has penned him up in Baton Rouge, and he has been compelled to confine himself to telegraphic and telephonic communication. A feature of the situation that is attracting attention is the fact that what are termed centers of infection now exceed the number of cases under treatment. It is an encouraging feature because it is an indication of a slow extension of the fever, which is particularly true of the quarter above Canal Street. It is hoped soon to reduce the number of disease centers. Ordinarily, it would be assumed that a center would become extinct in twenty days, the length of time within which the *Stegomyia* should furnish fresh cases in any neighborhood which has been infected. In order to take no chances, health officers will not cancel any disease centers until thirty days have elapsed. Large quantities of rock salt have been purchased by the Federal authorities with a view to salting stagnant gutters and pools. The salt is intended to destroy the pools as breeding places for mosquitoes. A freshly infected spot in St. Bernard parish was announced last Wednesday. It is at Terre aux Boeufs, the parish seat. Health Officer Meraux found five genuine cases and three that were suspicious. The town and its vicinity were invaded

by Italians after the fever appeared at New Orleans. In Leeville, near the mouth of Bayou Lafourche, nearly two-thirds of a settlement of three hundred persons have been infected and several deaths have taken place. Dr. Devron is the only physician there, and his difficulties are increased by the fact that the settlement lies on two banks of a rather wide stream. Assistance is being asked by other points in the matter of physicians and nurses. There is a steady increase of disease in Hanson City. In St. Charles parish the infection is increasing and is beyond the control of the force thus far sent there.

Hospital for Constantinople.—In the city of Constantinople, writes the *Evening Post*, with 1,250,000 inhabitants and surrounded by a district containing a population of 24,000,000, the trained nurse is practically unknown. Nor do the native physicians practise surgery, as the consequences of a case that ends fatally are too unattractive for a doctor to take the chances. The American Hospital and Training School for Nurses, in Constantinople, is endeavoring to awaken the city to the necessity of caring for the sick scientifically. Dr. Thomas Spees Carrington, the physician in charge, received recently from John G. A. Leishman, United States Minister to Turkey, a letter indicating the high opinion of the movement entertained in American circles there. Mr. Leishman said: "I am very glad to learn by your letter of July 18 that you have made substantial progress in your efforts to establish an American hospital and training school for nurses in Constantinople. An 'up-to-date' American hospital will prove a boon here, and I am sure that all your friends will welcome your return to Turkey as chief of the hospital staff; and I am quite of the opinion that no greater humanitarian or philanthropic enterprise could be undertaken than the establishment of a training school for nurses, as the customs of the country render the nurse in most cases a more important factor in the family than the doctor, and while there are many doctors, a nurse of any kind is rare and a good one almost impossible to find. The only criticism I venture to offer is that I think you are starting out upon too modest a basis, as an institution of the kind mentioned should, in my opinion, be placed at the beginning upon a good solid basis, not only with enough money to erect and equip the necessary building, but also with a sufficient endowment to guarantee its proper conduct." To foreign residents, as well as the natives, is the training of nurses in the city a matter of vital concern, and the school has among its trustees men whose names guarantee its sincerity of purpose. They include William Ives Washburn, of New York, president of the institution; Dr. Henry O Dwight, missionary and author; Edwin H. Baker, junior partner of the New York firm of Bliss, Fabyan & Co.; the Rev. Dr. Charles H. Richards, secretary of the Congregational Church Building Society; John Beverley Robinson, and Dunham Wheeler, the New York architects, and Ernest Hamlin Abbott, associate editor of the *Outlook*. Checks sent as gifts to the hospital and training school should be made payable to Brown Brothers & Co., bankers, No. 59 Wall Street, New York.

The Modern Juggernaut—The *Railway Gazette*, writes the *New York Times*, tabulates twenty-three collisions of railway trains and twenty-five derailments during July. There was no notable disaster, yet there was an average of a death every day in a month, which compares favorably with its predecessors. One collision was caused by a train being ahead of time. A misplaced switch threw one train into another, and many deaths were averted only by the chance that a "dead" locomotive took up the shock. Many will compare these figures with the annual reports in England and the United States, which have just appeared simultaneously, and with the mortality of battles. According to the Inter-State Commerce Commission, more were killed and injured on railways last year than at Gettysburg or Mukden. The fatality ratio of passengers to accidents was 100 times higher here than in England. We have seventeen times more employees and 600 times more casualties among employees. In England yast year the collisions and derailments totaled 217, which happened to be the precise average for twenty-four years. Last month there were forty-eight collisions and derailments, and there will be over 600 this year in the United States. We have more miles of road, and more trains, to be sure, but the disproportion is not creditable. We would not minimize the facts. They speak for themselves. Americans think there are too many such occurrences in the United States, while the English are well satisfied with their record. Something may therefore be said about the comparison. Most of the English facts are taken from a report by Consul Mabin, at Nottingham. He accepts the official Board of Trade figures without examining or criticizing them. It is hard to find fault with him for that, but we find in *The Press*' London letter an analysis of the figures more to our liking. It seems that in 1901 one person was killed to each eighteen miles of track in England, and one to each eighty-four miles in the United States. One was killed to each 924,000 passengers on British railways, and one to each 2,129,382 on American. Moreover, the figures in England are treated to a process rather putting our own able Mr. Holmes to shame as a manipulator. It seems that the facts are first made up in a "preliminary return," which is not published. This return for 1904 showed 1,158 deaths and 18,749 injuries. But the returns as published show six passengers "killed through train accidents." This is the basis of Consul Mabin's statement that the deaths were 1 in 199,758,000 journeys. But there were 109 other deaths of passengers, nevertheless. No less than thirty-three lost their lives through an accident impossible on American railways. That number, 1 in each 39,000,000, fell out of compartment doors. They were killed all right, but they were not killed in "train accidents." The report told the exact truth, but it is as misleading as diplomatic reports, which are so phrased as to deceive without enabling the diplomat to be called a liar. For some obscure reason the British reports do not include commuters. Upon the average of thirty years British railways kill twenty-three passengers yearly. It is a shameful comparison with the American record, but then our figures include commuters. It would almost seem as though our accident statistics were made up by yellow journals for purposes of their own and as though British statistics were made up by and for British railways, also purposes of their own. For our own part, and with this opinion the Medical News most emphatically coincides, we think too many are killed in either country. We have not the slightest tolerance for grade-crossing horrors, nor for overworking single-track systems, nor for parsimony productive of inferior apparatus or employees. We think any comparison unfair under conditions so different as between England and the United States, or as between our own older and more thickly settled communities and our crude railway enterprises in the West. We cannot believe that our apparatus and administration are inferior upon any fair comparison,

and we should not shrink from placing equally truthful figures side by side. We do not question the good faith in which the British figures are compiled or presented to us, but it would seem that the methods are so different that unwarranted conclusions are suggested. Our figures are dreadful, but not so dreadful as they seem. The British figures lull into a false security. The great crime is in the killing. It boots little what the percentage per mile is.

SPECIAL ARTICLE.

BYWAYS OF MEDICAL LITERATURE.—XXV.

MEDICINE AND MEN OF LETTERS.

It is a curious fact, writes the *British Medical Journal*, that great writers, speaking generally, have been no lovers of the medical profession. This is doubtless the reason why doctors for the most part cut so sorry a figure in literature. Scribes of all sorts take a special pleasure in girding at them. Shakespeare, indeed, used them gently, as though he loved them. Although the medicine of his time was a tempting subject for the satirist, his large mind saw the nobility of its aim, which to less penetrating and sympathetic eyes was disguised by the poverty of its outward apparel, and divined the possibilities of development that lay hidden in the mass of error and superstition of which it mainly consisted. But Petrarch wrote treatises against medicine and its professors; Montaigne laughed at them; Molière put them on the stage as fixed figures for the scorn of time to point its finger at; Rousseau vilified them; Voltaire is the author of the famous saying that the healing art consists in pouring drugs of which the physician knows little into a body of which he knows less; and Carlyle said he might as well confide his sufferings to the hairy ear of a jackass as to that of a physician.

Is this attitude of mind due to intellectual superiority or simply to the conceit and egotism which are pretty constant ingredients in the composition of genius? To the doctor all men are equal; they are simply cases, and the case of a costermonger may be more interesting than that of a poet or a philosopher. Yet philosophers and poets probably think that their ailments should be treated as exceptional because they who suffer from them are exceptional persons. Flaubert—himself, by the way, the son of a distinguished surgeon—is said to have hated doctors because they treated him as a *bourgeois*.

It is, indeed, the literary people who are largely responsible for the distrust of the medical art that so many persons who, in Beatrice's phrase, "profess apprehension," pretend to feel. Whether he be moved, like Molière, by resentment at the failure of medicine in his own case, or like Swift, by fierce indignation which tears his heart, or like Carlyle, by what the old physicians called "black bile," the writer speaks *urbi et orbi;* the doctor in his secret ministry has only the few anxious watchers by the sick bed for an audience. The contest being conducted on terms so unequal, what wonder is it that the doctor gets the worst of it?

We have lately come across a passage in the *Journal Intime* of Frédéric Amiel, in which the Genevan professor of esthetics and philosophy admired of Matthew Arnold and so many other superior persons, expresses his views on doctors. "Why," he asks, "do doctors too often give bad advice?" His reply to his own question is that it is because they do not sufficiently individualize their diagnosis and their treatment. "They class all their patients in an allotted drawer of their nosology, and yet every patient is a *hapax*" [in grammatical terminology a ἅπαξ λεγόμενον is a word or a construction of which there is only a single example.] How, he goes on to say, can so rough a sifting lead to judicious treatment? "Every disease is a factor simple or complex multiplied by a factor which is always complex, namely, the individual who is the subject of it, so that the result is a special problem, always requiring a special solution, especially the further removed one is from childhood and from rustic life." To us, of course, all this is the merest commonplace, but Amiel gives forth his platitudes as if he were Sir Oracle proclaiming a new gospel. He goes on to say that the chief fault he has to find with doctors is that they disregard the true problem "which is to grasp in his unity the individual who needs their care." Their methods of investigation are, he complains, much too elementary; "a physician who does not read one to the bottom does not know the essential." A doctor after his heart should have a profound knowledge of the life and the soul, divining intuitively a disorder or suffering of any part of the being, and restoring peace by his mere presence. Such a doctor, we are assured, is possible, but most practitioners lack the higher and inner life; they know nothing of the transcendental laboratories of nature To Amiel's mind they are "superficial, profane, strangers to the divine, destitute of intuition and of sympathy." He concludes that the model physician should be at once a genius, a saint, and a man of God.

All these noble sentiments and fine language translated into common speech mean nothing more than that Amiel had been treated by his doctor as a man of mould like other folk; he doubtless gave the sensitive philosopher mere vulgar pills and potions, whereas he should have seen by intuiton that there was a disorder of the finer feelings, for which more ethereal medication was indicated.

We hold strongly that there is in the practice of medicine, in the highest sense, much more than pills and potions, more even than the wisest physical therapeusis. We quite agree that the practitioner will find much to learn in the transcendental laboratories of nature; to him more than to any other, nothing human must be foreign. It often falls within his province to treat the spiritual or mental condition of his patient. But he must not on that account neglect the humbler, but equally essential, part of his art. If in trying to influence the soul he forgets to treat the body, he will find himself in the position of the astronomer who, in gazing at the sky, fell into a ditch. If all doctors are to be geniuses, there will be no ground for further complaints as to the overcrowding of the profession. But will the last state of sufferers from disease be better than the first? It would assuredly be well if all doctors were saints and men of God, but genius is as much out of place in the sick room as Sir Frederick Treves holds it to be in the operating theater. Genius is of its very nature soaring and cares nothing for the small things that make up the greater part of human life and that are of such infinite importance to the sick. On the other hand, medicine, which, unlike the law, must concern itself about the least, is patient, plodding, and pedestrian. Genius practising medicine would be like Pegasus between the shafts of a milkcart.

CIGARETTES.

In De Quincey's essay on "Murder as a Fine Art," it will be remembered, it is pointed out that a murderer is likely to descend to almost any depths of criminality. Let him overindulge his desire to kill people and soon he finds himself tempted to commit robbery. From robbery he descends to drinking and Sabbath-breaking, and in time he becomes a victim to incivility and procrastina-

tion. So far almost any one is sure to agree with De Quincey. The Indiana Legislature, however, has imagined a blacker depth into which your skilful murderer might, unless checked by law, descend. He might become a cigarette smoker. It is no news, of course, to say that one may not smoke cigarettes in that State without breaking the law. What may prove of interest are scraps of evidence from the heap piled up before the lawmakers to hasten the passage of the law. Judge Stubbs of the Indianapolis juvenile court read a paper on "The Evils of the Cigarette" before a recent meeting of the Indiana State Teachers' Association which throws De Quincey's conceit far into the background as a real thriller. He wrote after an experience of twenty months on the bench of the juvenile court. "In that time," he said, "I have had before me 1,208 boys and girls—mostly boys—all of whom have been charged with offenses against the law. These charges have covered the entire list of offenses known to the law in Indiana from the most trivial misdemeanor to the greatest of crimes, including petit larceny, grand larceny, housebreaking, burglary, arson, forgery, assault and battery with intent to kill, assault upon girls with criminal intent, manslaughter, murder, and that other nameless crime for which negroes have so often been burned alive in some of the Southern States.

"In inquiring into the causes that have brought about such a great increase in the number of offenses against the law in the last few years by boys, I have reached the conclusion that, aside from the frailties and weaknesses that afflict our common humanity, and which are likely to blossom and develop into crime, especially where there is a lack of parental control, or where the parents themselves belong to the ignorant or vicious classes, by far the most potent factor is the cigarette habit."

It is a grave charge to bring against the cigarette, but the judge seems to have had no trouble in supporting it with plenty of evidence outside his own courtroom. In the campaign against the "coffin nail" the teachers in the lower schools "from Michigan to Georgia, and from New England to California" were appealed to for testimony. The speaker singled out the reply of a young woman teacher in an Indiana high school as representative. She wrote that the boy who is a victim to the cigarette habit "is frequently late and irregular in his attendance. He is restless. . . . He does not like to study, and by and by he comes to the place where he tells the truth when he says that he cannot study. His moral sense becomes perverted. . . . His moral standard is low in all respects. He will turn the most lofty sentiment in literature to vulgarity. . . . He is slouchy in his manner, his clothing, and his talk." There were other letters heaped upon the mass, and the judge went down into the records of his own court to bring forth the tottering, shaky specimens of cigarette-damned youth. As a final clarion call to the teachers to save Indiana from the terrible curse, some of Judge Stubb's closing sentences should be preserved and pasted into De Quincey's essay: "Something must be done to save the youth of our land. . . Some of us who are yet living have stood on the red line of battle at a time when it seemed to us that the whole world was filled with horror and despair, but now the wildflowers bloom in peace on the bloody field and above the crushed skeleton. Peace and prosperity now reign where once the bursting shells and rattling musketry carried death and destruction to friend and foe. But for moral degradation there is no reviving spring. Let the boys of our country become corrupted and their manliness destroyed, the hope of the nation poisoned at its fountain head, and the abomination of desolation spoken of by Daniel will be upon us."

SIR RICHARD OWEN.

In Sir Mountstuart Grant Duff's *Notes from a Diary 1886-8*, there is frequent mention of Sir Richard Owen. Once the famous anatomist told him what a happy use he had made of one of Milton's sonnets. He became a member of that highly select body "The Club" much earlier than most of the few who are chosen for admission because Johnson had expressed a wish that one member should be a physiologist. Hardly had he been elected when he was placed in a great difficulty. The opinion of the Club was asked as to whether a representation of Cromwell should be introduced in the new Houses of Parliament. Various views were expressed, when Lord Aberdeen, who was Chairman, said, "Well, we'll take a vote, and we'll begin with the youngest member." Owen extricated himself from an embarrassing position by saying, "Whatever we may do, we cannot raise for Cromwell a monument at all equal to one he has got already." The other members looked surprised, and he was asked to what he alluded, whereupon he quoted Milton's sonnet. The old man added that he was never so well repaid for learning a piece of poetry by heart. The moral is obvious, but we may be allowed to express a slight feeling of surprise that no one in a body, which is nothing if not literary, should have understood the allusion. On another occasion the diarist found Owen reading a volume of English letters, the frontispiece of which was a portrait of the Countess of Suffolk. Speaking of his memory, he said he found a difficulty sometimes in remembering ordinary names, but none with the pentasyllabic or hexasyllabic names of extinct monsters. Only that morning he had finished a paper for the Royal Society upon one of these—a creature of the crocodile kind, but without teeth—sent to him from Lord Howe's islands. Asked as to the personal appearance of Buckle, the author of the *History of Civilization*, Owen startled his questioner by answering, "Like a young Gibbon," an expression which, coming from the lips of the great zoologist, seemed to imply a resemblance to our quadrumanous relative. Owen, however, explained that he meant the historian. At another visit very near the end of Owen's life, he mentioned a curious instance of heredity in his own family. His grandson, then an undergraduate at Cavendish College, Cambridge, had developed so remarkable a turn for playing the organ that the authorities were able to dispense with the services of a regular organist. Professor Owen's mother was for several years organist at Ormskirk Church, and her father again was long organist at Lancaster. Their name was Parrin, and they came of ancestors who took refuge in England after the Revocation of the Edict of Nantes.

THOREAU, THE OPEN-AIR CULT AND TUBERCULOSIS.

Perhaps no American philosopher cultivated the open-air cult with greater zeal than Thoreau, who even went so far as to get into trouble by relapsing, as W. W. Godding remarks (*American Psychologic Journal*, 1883), into a state of nature on the shores of Walden Pond, yet Thoreau died at quite an early age from tuberculosis. Thoreau's early death, according to Elbert Hubbard, "was (Little Journeys, December, 1904) the direct result of his invariable and reckless lack of common prudence.

That which made him live in the literary way curtailed his years. The man was improperly and imperfectly nourished, physically. Men who live alone do not cook any more than they have to. Men and women both cook for emulation. Thoreau was such a pronounced individualist that he cared for no one but himself, and he cared for himself not at all. It is wife, children, and home that teach a man prudence and make him bank

against the storm. 'At Walden, no one bothered me but the State,' said Thoreau. If Thoreau had had a family and treated his household as he treated himself, that scorned thing, the State, would have stepped in and sent him to the workhouse and his children to the Home for the Friendless. If he had treated dumb animals as he treated himself, the Society for the Prevention of Cruelty to Animals would have interfered. The absence of social ties and of all responsibilities fixed in his peculiar temperament an indifference to hunger, heat, cold, wet, damp, and all bodily discomfort that classes the man with the flagellants. He tells of whole days when he ate nothing but berries and drank only cold water; at other times, of how he walked all day in a soaking rain, and went to bed at night, supperless, under a pine tree. Emerson records the fact that on long tramps Thoreau would carry only a chunk of plum-cake for food, because it was rich and contained condensed nutriment. A few years of plum-cake, cold mince pie, and continual wet feet will put the petard under even the stoutest constitution. During his shanty life Thoreau was imperfectly nourished, and for the victim of malassimilation, tuberculosis hunts and needs no spy-glass. In childhood Thoreau was frail and weak. Outdoor life gradually developed on his slight frame splendid strength to do and endure. He could outrun, outrow, outwalk any of his townsmen. In him developed the confidence of the athlete—the confidence of the athlete who dies young. Thoreau was an athlete, and he died as the athlete dieth. Irregular diet and continued exposure did their work—the vital powers became reduced, the man 'caught cold,' bronchitis followed, and the tuberculæ laughed."

The culture medium here portrayed is an excellent one for tubercle bacilli to infect, but the origin of the bacilli is, from the ordinary Lives of Thoreau, not so clear. One of the great philanthropic agencies of the day was the "underground railroad," which conveyed fugitive slaves from the United States to Canada. Many of these contracted tuberculosis on the way from the South, and infected their hosts at the various "stations" on the "railroad." Thoreau was an active agent, and his home was a "station." It is hardly surprising, therefore, that he should have contracted tuberculosis from the slaves he aided, since other than in the Latin countries very little attention was paid to infection by sputum, despite the fact that in Scotland and in the Irish school of physicians, influenced by it, consumption was as early as 1722 regarded as an infection. Many of the precautions urged now were carried out in Italy sixty years ago. The great development of tuberculosis among negroes since the war, under the unfavorable conditions of self-protection, indicates the dangers to which the agents of the underground railroad were exposed by their charges. The slight frame of Thoreau hints at the inheritance of the paratuberculosis defects pointed out by de Giovanni, who found that particular nervous states existed in the descendants of the tuberculous, whom he (*Bulletin Méd.*, 1887) divides into erethists, torpids, and energetics. There is usually a diminutive heart, whose right ventricle has comparatively exaggerated dimensions, while the arteries have lessened caliber. The victim of the torpid type is usually coarse-featured and coarse-skinned, with peculiarly unstable mentality; slowness of comprehension is combined with power of continuity of thought; at times mental apathy alternates with quickness of perception. Decided exaggeration of the lymphatic system with deficient functionation occurs, resulting in fitting a soil for germs. In other respects the torpid resembles the second type, the erethistic or nervously fussy type. This is generally characterized by the presence of a clear complexion, a fine skin, and features well cut and often beautiful. The lips are red and the teeth pearly white, though liable to early decay. The eyes are large and full, the pupil being widely dilated, and the white of the eye beautifully clear. The eyelashes are long, curved and silky, and the blue veins show distinctly through the clear, thin skin. The bones are light, the hands and feet well formed, the stature often tall, and the whole figure slightly and gracefully built. The erethists generally remain spare, and have a strong dislike to fatty food. They are vivacious and excitable, and the intellectual faculties are often highly developed. At an early age they show marvelous activity. The regularity with which such precocious tuberculous children die has given rise to the proverb anent exceptionally clever children that they are "too wise to live long." Wanting in stamina, they are incapable of prolonged exertion either of mind or body, and break down under conditions which would not prove injurious to the healthy. They are continually taking "cold," and are prone throughout life to affections of an inflammatory character. Multiple and frequent pregnancies occur. The children, deficient in vitality, are carried off in numbers during infancy by convulsions, brain fever, water on the brain, exhaustion, diarrhea, teething and other ailments, or succumb at the second dentition or at puberty. A small proportion reach maturity. Few live beyond thirty-five or forty years of age. However brilliant intellectually, they are equally emotional, impressionable and impulsive. There is a marked absence of mental stability. They are suspiciously capricious. The great secreting and eliminating glands frequently undergo perversions.

Both these types were peculiarly frequent in New England. The paternal ancestors of Thoreau came from the Island of Jersey; the maternal were of Puritan stock. The erethistic type appears in Thoreau's suspicional zoophilism, which led him, as his lately published journals show (*Atlantic Monthly*, January, 1905), to prefer the society of a woodchuck to his friends.

SOCIETY PROCEEDINGS.

NEW YORK PATHOLOGICAL SOCIETY.

Stated Meeting, held April 12, 1905.

The President, Harlow Brooks, M.D., in the Chair.

Demonstration of a Case of Hydatid Cysts of the Liver.—Dr. J. E. Welch demonstrated a case of hydatid cysts of the liver. The subject from whom the specimen was taken was a native of Switzerland, forty-nine years of age. It was not known how long he had been in this country. He had been admitted to Bellevue Hospital on March 6. The family history was negative except that his brother had tuberculosis. He had been in the habit of drinking about five or six glasses of whisky daily and as much beer, but was not a drunkard. His personal history showed that he had none of the ordinary diseases of childhood. He had had pneumonia about ten years before and since that time had had a cough. Eight years ago he had an attack of rheumatism, which was repeated the following year. For five months before admission he had been coughing constantly, and raising mucopurulent sputum, which was never blood tinged. Three days before admission he had a sudden sharp pain in the right axillary region, followed by chilly sensations, but no distinct chill. Physical examination showed a well-developed, fairly well-nourished man. The action of the heart was weak

There were no murmurs. The right chest showed hydropneumothorax. The urine had a specific gravity of 1.024 and was negative. The sputum contained many tubercle bacilli. The temperature ranged from 98° to 103° F. for the first two days; on the following three days, which included the day of death, it ranged from 96° to 101° F. The pulse ran from 96 to 140. At autopsy the right pleural cavity contained two liters of purulent fluid and air. The right lung was compressed to a mass about the size of the hand. The left lung was consolidated and contained many small tuberculous cavities. There was general congestion throughout the abdominal organs. The left lobe of the liver was represented by a narrow margin of shriveled tissue. Sections showed that the right lobe was congested and fatty. In the left lobe there was a cavity, eight cm. in diameter, having a thick fibrous wall, which contained a large echinococcus cyst. The cyst wall was folded upon itself on account of the confined space. There was no fluid present. No scolices were found. The diagnosis was made by the outer laminated and inner granular layers of the wall as seen under the microscope. The liver and a portion of the cyst wall were exhibited before the Society.

A Case of Eclampsia with Rupture of the Diaphragm and Stomach.—Dr. Welch also reported this case. No details of the clinical history were given. The patient was a woman twenty years of age. She was delivered at the hospital and two or three days after was taken with eclamptic seizure. She had several seizures, one after the other, in rapid succession, for two or three days, and finally died in a convulsion. At autopsy the body showed a slight diffuse jaundice. The pericardium had several small punctate hemorrhages. There were small hemorrhages in both lungs. The liver was slightly increased in size and yellow in color. All the other organs were congested. Sections of the liver showed yellow areas, some fused, but for the most part markings were irregular streaks of yellow. The central veins were somewhat dilated. There was general disintegration of the liver cells. In the cells were large deposits of fat, some in the shape of large globules. The kidney showed extensive parenchymatous change. There were two ruptures in the diaphragm on the right side, one around the left margin of the esophagus, which admitted the passage of three fingers, the other about two inches to the left of the esophagus. Here the muscle fibers were separated so far as to admit the passage of three fingers. The stomach was ruptured in three places along the lesser curvature, and the contents had been forced through the diaphragm. There were about 500 c.c. in the left pleural cavity and 200 c.c. about the spleen. The contents were sterile, contained blood, and gave an acid reaction. The rupture was evidently very recent, as there was no inflammatory reaction in the peritoneum or pleura. Sections of the liver and kidneys were shown.

Dr. Harlow Brooks, in the discussion, said that so far as he knew this was the first case reported in this country of rupture of the diaphragm from eclampsia. He had been led to believe that it was very rare.

Pronounced General Osteoporosis.—Dr. E. S. McSweeny reported a case of osteoporosis. The entire skeleton was exhibited. It was that of a fairly well-nourished woman, forty years of age, five feet seven inches tall. Its weight was about seven pounds. The bones had first attracted attention in the dissecting room two months after death, so that there was no record of their more recent state, nor could any history of the case be obtained, other than that the patient had died of pneumonia. Some of the vertebræ being the merest shells of compact bone tissue were almost completely destroyed in handling. As a whole, the skeleton showed very little change in gross outline, except a moderate cervicodorsal kyphosis. There were no fractures, ankyloses, or similar lesions. The individual bones without exception showed very considerable loss of substance, chiefly of the cancellous tissue. The compact tissue was defective here and there, evidently from an extension of the process. The skull vault was almost sieve-like; the scapulæ hardly thicker than heavy paper and extraordinarily translucent; while in the long bones the shafts were chiefly affected. On looking over the very meager literature bearing on such conditions, Dr. McSweeny had found but few cases reported. In these changes were mostly local and not so extensive as seen in the specimen shown. As a general process osteoporosis was evidently rare and usually ascribed to senility or osteomalacia. The skeleton exhibited showed none of the characteristic senile changes, and the age of the woman excluded such a possibility. Distortions of the bone were more characteristic of osteomalacia than of osteoporosis, whereas in the present instance the reverse was true. The case was interesting surgically in that so extensive a lesion could exist in a woman of this class without the occurrence of a single fracture and with so little deformity. She had probably had to make her own living and, judging from the fact that she had been committed to the workhouse, had led a rather hard life.

Dr. P. W. Nathan, in the discussion, said that it was difficult to say much about the case, since there was no history. The condition of the ribs and the spine and the condition of the neck of one femur reminded one of cases of osteomalacia. There had been cases of osteomalacia reported where the disease came on very suddenly and might involve the skeleton like this in a short time. Osteoporosis is not a disease as such; it is associated with many disorders of the bones. In this case he believed that the bones were probably soft in their original condition. Naturally after all the soft parts were removed, they appeared much more brittle than they were during life. In osteomalacia there is always osteoporosis if the new formed non-calcified osteal tissue is removed, as was done in the present instance. He considered this a case of osteomalacia of some kind. The femur particularly was interesting.

Dr. Harlow Brooks said that he was much interested in osteomalacia at present, as he had been studying the disease in the primates, where it was very frequently found. He had never seen anything which approximated the changes in these bones. He had not seen a condition of the skull such as was found here, even in the fragile bones of the monkey. The condition of the thorax looked exactly like osteomalacia.

Dr. Nathan said that he thought the disease as found in monkeys was not exactly analogous to the osteomalacia found in man. It was more analogous to rickets.

Dr. Brooks stated that osteomalacia and rickets in the primates are two distinct and easily differentiated diseases.

The Addition of Marble or Other Calcium Compounds to Nutrient Broth: A Reliable and Convenient Method for Growing the Pneumococcus.—Dr. Charles Boldaun demonstrated cultures of the pneumococcus growing in marble broth. During the course of his work with the pneumococcus he had felt the need for a fluid medium like plain broth in which there would be no body fluids. Plain broth was almost worthless, for growth seldom lasted for more than one or two generations. He had at first tried to neutralize the broth to phenolphthalein, but had found that did not work. The addition of glucose to the broth did cause luxuriant growth of the pneumococcus, but the production of acid was so great that the cultures died off quickly. Attempts were then made to neutralize the acid formed by the addition of calcium carbonate. Experiments were made with glucose broth with calcium carbonate and with plain broth with calcium carbonate. The glucose broth proved to be unreliable, but the plain broth with calcium carbonate gave a good growth every day. In testing the acid in the various media it was found that cultures in plain broth with calcium carbonate usually remained neutral to penolphthalein. He had at first thought that the calcium carbonate had neutralized the acids and that this was the reason for the luxuriant growth. It was, however, found that the cultures in the medium containing glucose died off very quickly and that the presence of calcium carbonate did not increase the viability. In plain broth cultures with calcium carbonate alone, the cultures in one case were still alive at the end of thirty days. When plain broth was inoculated there was often not only no increase but a positive decrease of organisms, whereas when calcium carbonate was present there was growth from the start. This fact could not be reconciled with the assumption that the calcium carbonate acts only by neutralizing the acids formed. Tests had therefore been made with other calcium salts, chloride and sulphate. These indicated that it was the calcium element, in part, at least, which made the pneumococcus grow in this broth. Cultures of the pneumococcus grown in this broth lost little or none of their virulence. In preparing the marble broth the marble was broken into small pieces, then washed out in test tubes. The tubes were filled in the usual way and sterilized. The cultures remained viable fully as long as ascitic broth cultures. The growth was not quite so profuse as in ascitic broth, but was a marked growth. In the cases in which marble broth can be employed, its use obviates the tedious collection of ascitic fluid and the careful Pasteurization which ascitic broth requires.

Dr. F. C. Wood, in the discussion, said that he had been much interested in Dr. Boldaun's remarks on the use of calcium carbonate. It had been employed by Dr. Hiss for a year and a half in keeping his cultures alive for a long time. Dr. Hiss had found it important to see that the pneumococcus flasks were shaken up every day. This brought the acid into contact with the calcium carbonate.

Dr. Boldaun said that the point was not the neutralization of the acid, because when glucose was present the culture died out as fast as without the calcium carbonate. The important point was that the pneumococcus needed the calcium salt in some form or other.

A Method for Microscopic Identification.—Dr. Leo Buerger presented a method for the microscopic identification of colonies of the pneumococcus when grown on the surface of meat infusion serum agar or, preferably, meat infusion glucose serum agar, containing 1.5 to 2 per cent. peptone and 2.5 per cent. agar plus one-third of its volume of a high proteid ascitic fluid. The surface colonies of the pneumococcus show a circular, disc-like, flattened growth with a regular contour. When viewed from above, the surface appears glassy, with often a slightly depressed center. When looked at from the side or by transmitted light they appear as distinct milky rings inclosing a transparent center. The ring colonies may vary considerably in their size, but they can be detected in colonies which are not over 1 mm. in diameter. Occasionally the characteristic appearance is not observed until forty-eight hours have elapsed. This appearance, so far as the speaker was aware, was diagnostic of the pneumococcus. It must be differentiated from two other types of colonies, first, from those with a prominent periphery occasionally met with in the case of streptococci; secondly, from those colonies which show rings only by transmitted artificial light. The former, if carefully examined, will be seen to possess a distinct nucleus which is never seen in the characteristic pneumococcus forms. The latter is not to be mistaken if it is studied by reflected light. The center of these streptococcus colonies is raised above the periphery and when held up against an artificial light appears to have a bluish peripheral ring.

Mycotic Aneurisms.—Dr. E. Libman presented three cases of mycotic aneurisms. The first case was sick about a year previous to admission with chills, fever and sweating. This had lasted for about two weeks, and the symptoms had not recurred until about a month before admission to the hospital. After entering the hospital he had a feeling of weight in the epigastrium after eating and pains radiating to the back and between the shoulders. The patient lost forty pounds in a few weeks. Temperature on admission was 99.6° F. Physical examination showed nothing except an indistinct small mass felt just to left and below the umbilicus, with an enlargement of the heart and a systolic murmur at the apex transmitted to the left and also over the arch of the aorta and the lower third of the sternum. While in the hospital the temperature rose to 103° F. Leucocytes were 25,000, hemoglobin, 33 per cent. Exploratory laparotomy revealed a small aneurismal sac lying in the mesentery near the root. At postmortem there was a marked hypertrophy and dilation of the left ventricle with atheroma of the mitral valve which showed recent vegetations, and two aneurismal pouches on the edge of the flap. At the hilum of the spleen an aneurism of the splenic artery was found measuring about 6 cm. in diameter, just below which there was a sacculation of about 60 c.c. In the mesentery there were two well developed aneurisms, one small area of ulceration and two beginning aneurisms. The ulcerated area in the vessels and the well developed aneurisms showed a distinct sharp break in the intima and a tendency to localization at the bifurcation of the vessels. The lesions were all situated in the branches of the superior mesenteric artery. Streptococci were found in the lesions.

Case II had a history of six weeks' illness, with tonsilitis at the beginning. There was cough with mucous expectoration. Three weeks before admission the patient noticed a swelling in the left groin, which pulsated and was painful. On admission a loud, blowing systolic murmur was made out at

the apex of the heart which could be heard in the axilla and posteriorly. The second pulmonic sound was accentuated. In the left femoral region there was a small oval, elastic swelling. This was painful to the touch, and had expansile pulsation. A loud systolic diastolic humming murmur with systolic accentuation could be heard over the mass. A diagnosis was made of arteriovenous and the patient was operated upon on the day of admission by Dr. Wiener. The external iliac artery was tied in two places and cut between the ligatures with the intention of tying the femoral artery below the sac. Resection of the lower end of the sac was attempted, but it was found necessary to tie the femoral vein and artery. At autopsy the mitral valve was found thickened, and the aortic flaps insufficient. On the under surface of one of the aortic flaps there were very large vegetations. On the center of this flap and on the margins of the other flaps were masses of fine vegetations. There was marked atheroma of the aortic arch. The kidneys showed chronic interstitial nephritis and there was a small aneurism on one of the lesser branches of the renal artery. Intestinal vessels showed no changes. The femoral artery showed marked endarteritis and there was an aneurism at the point where the profunda was given off. The sac contained thrombotic masses, most of which were not decolorized. The remains of the vessel wall were present in the sac. The femoral vein had a small defect in its wall externally and anteriorly which led into the sac. Bacteriological examination showed *Staphylococcus aureus* in the aneurismal sacs of the femoral and renal arteries, while streptococci and *Staphylococcus aureus* were obtained from the heart's blood.

Case III was admitted to the service of Dr. Rudisch with a history of rheumatism in the ankles and knee joints at the ages of nine and fourteen years. The present illness dated back three months. The symptoms first noticed were diarrhea, cramp-like pains in the abdomen, and pain in the ankles and wrists. The patient was weak and had a poor appetite. For four weeks his feet had been swollen whenever he was out of bed, and he had had a cough for four or five days. He had slight fever and sweated a good deal at night. Physical examination showed slight cyanosis with clubbing of the fingers. The apex beat of the heart was palpable in the fourth space 1 cm. outside of the nipple. A short systolic thrill was present at the apex and a short systolic murmur which was transmitted to the anterior axillary line and the pulmonic area. The first heart sound was very sharp and the second pulmonic sound accentuated. The leucocytes were 12,400, hemoglobin, 50 per cent. No changes were noticed about the joints. The temperature, which was 102° F. on admission, ranged from 99° to 101° F. The urine showed a trace of albumin and a few hyaline and granular casts, also a few red and white blood corpuscles. There were a few petechial spots on the conjuctiva, palm of the left hand, and on the cheeks. A diagnosis was made of mitral stenosis and acute endocarditis. The differential blood count showed 76.5 per cent polynuclears, 22 per cent. lymphocytes, and 1.5 per cent. eosinophile. Treatment was made by injections of collargol. A month after admission an elongated, bulging mass, 1.5 inches long, parallel to the femoral artery and just outside it, was noticed at the junction of the upper and middle third right thigh. The mass did not pulsate and did not disappear when the artery was occluded. Two days later expansile pulsation and a bruit were made out. A diagnosis was made of a mycotic aneurism. Five days later the mass had increased in size, was distinctly cystic, and appeared to be attached to the femur. Two days later an acute parotitis developed on the left side. Three days later there was an attack of right hemiplegia with absolute aphasia. During the day, however, there was a partial return of speech. Two days later a marked motor aphasia appeared and the diagnosis was made of probable rupture of one of the branches of the left Sylvian artery. An operation was performed by Dr. Lilienthal and an incision was made over the elastic swelling, which was found to consist of a softening laminated blood clot. The lateral aspect of the femur was eroded for a depth of three-eighths of an inch, for about two inches. The walls of the defect were quite rough. Two weeks later there was a hemorrhage from the aneurismal sac which was controlled by packing, but twelve days after this it was found necessary to tie the femoral artery, the bleeding having been found to come from a small rupture in the wall of the artery. Shortly after this there was a rise of temperature with development of a right sided pneumonia, and the patient died on the same day. During the course of the disease four blood cultures were made, which showed the presence of a small number of attenuated streptococci possessed of moderate hemolytic power. At the time of the operation on the thigh, cultures from the clot were made and streptococci found. Postmortem examination showed pneumonic areas in both lower lobes of the lungs. The heart showed hypertrophy of the left ventricle and dilation and hypertrophy of the right ventricle. The mitral valve showed a moderate stenosis. There were bright yellowish green vegetations on the flaps and the surface of the auricle. There were small, yellow infarcted areas in the heart wall, but no emboli were found in the branches of the coronary artery. The spleen, which was enlarged, was deformed by recent and old infarcts of the striking yellow color repeatedly found in splenic and renal infarcts in cases of acute endocarditis, due to attenuated diplococci and streptococci. The kidney showed recent and old infarcts. On the branches of the superior mesenteric artery there were several aneurisms, two about the size of a walnut, the other two about the size of a bean. The liver was very large, congested and fatty. At the hilus there was a large aneurism developed from the right branch of the hepatic artery. Near the surface of the liver were numerous small, irregular yellowish areas. Part of the right femur was removed. It showed marked erosion. The exact origin of the aneurism could not be traced, as the aneurism had been opened up during life and the sac was found almost entirely destroyed by suppuration. Bacteriological examination showed the presence of the same attenuated streptococci that had been present during life in all the organs of the body.

Attention was drawn to the following points. In the second case there was an arteriovenous aneurism of the femoral artery, apparently secondary to a tonsilitis. In the third case the rapidity with which the femur was eroded was certainly very striking. In all three of the cases there was present a chronic interstitial nephritis. It was likely that this predisposed to a general infection and made both the

valves and the vessels more liable to attack by the bacteria.[1]

Dr. James Ewing, in the discussion, said that he had been greatly impressed by the extent of the aneurisms in these cases. When Dr. Libman had called attention to the fact that the patient in the second case had had an attack of acute tonsilitis six weeks before death, he had received the impression that Dr. Libman intended to connect the tonsilitis with the development of the aneurisms. The examination showed that the heart valves and the aorta exhibited old lesions favorable to the development of aneurisms, so that it would seem difficult to demonstrate that these aneurisms developed as a sort of sequela to the tonsilitis.

Dr. Libman said that prior to the attack of tonsilitis this patient might have had fever. Of this, however, there was no evidence. But he thought it was not at all improbable that there was a connection between the aneurism and the tonsilitis. It is a clinical fact that tonsilitis predisposes to systematic infection with the production of acute endocarditis, acute nephritis and other lesions. It would not take long for thrombotic masses or vegetations to form on valves already the seat of disease and the lodgment of such emboli from such sources in vessels should readily produce mycotic aneurisms. It was remarkable how rapidly such aneurisms could be formed, and how readily they could rupture or invade the surrounding tissues.

Some Observations on the Subway Air.—Dr. E. E. Smith presented some observations on the air in the Subway, which he made in the month of December, at the request of the Health Commissioner. They were few in number, but were systematic and were believed to show some general conditions. The air was taken from the cars of the Subway during operation, and, for comparison, from the Subway stations and from cars of the elevated road, and from the outside atmosphere at a distance of five feet from the level of the street. The temperature and humidity, the amount of oxygen and carbon dioxide, and the number of micro-organisms in the air were studied. The results did not afford any basis for adverse criticisms.

The temperature and humidity did not indicate conditions to cause discomfort. The amount of oxygen of the air was found to be normal. An indication as to whether air is vitiated is found in the amount of carbon dioxide present. Pure air is put at 3 to 4 parts in 10,000. Authorities agree that 7 parts in 10,000 is the upper limit of safety. In this respect the air in the Subway cars is worse than the air in the Elevated cars. Bearing in mind the temporary occupancy of the cars the carbon dioxide did not show an alarming percentage. The air in the empty or partially filled cars was within the safety limits. In regard to the number of micro-organisms found under present conditions, there was one striking fact, namely, the large proportion of molds present. After considering the possible causes, Dr. Smith believed that two might very probably exist: (1) That the atmospheric conditions, the absence of light and the moisture of the walls, owing to their being recently built, were favorable to the development of molds; (2) that the production of currents of air by the movement of the trains kept the molds in suspension in the air. The constant moving of the air tended to prevent their settling out. The question of the influence of the presence of molds on health was one on which our present knowledge is too meager to permit of definite conclusions.

Dr. James Ewing, in the discussion, said that he was much interested in these figures, which, as he understood them, indicated a very much larger bacterial and mold content in the Subway air than in that of the street. He had not understood exactly how these tests were made on the street, but it seemed at any rate that it would be a dangerous thing to go into the Subway if there were so many more micro-organisms in the Subway than there were in the street. Some years ago he had made some tests on the bacterial condition of the air of the streets for Dr. Woodbury. They were intended to determine how many bacteria would fall on Petri dishes exposed in various places. There was an enormous difference in the number of bacteria in the air of different streets and in different states of weather. It seemed to him that unless these experiments were very carefully controlled as to temperature, air curents, etc., they were unfair as a comparison between the air of the street and that of the Subway.

Dr. Smith said that Dr. Ewing's remark especially applied to observations made with Petri dishes and not to the same extent to air examined by passing through the aërobioscope where the surface was not exposed in that way. The air had been taken at five feet above the surface of the street, and it was taken in a spot where it was guarded from wind. On one or two occasions there was snow on the ground, so that there could have been but very little dust. The temperature in the street was from 25° to 35° F. Dr. Smith did not think that the figures given were in any way alarming. They were no greater than were found in crowded rooms in our own houses. Personally he believed it quite possible that the growth of the molds was very largely due to the damp condition of the Subway when it was first opened. He would not be at all surprised if later observations should show that the growth of the molds had become very much less.

Report on Some Observations on Fatty Extracts From Organs.—Dr. E. K. Dunham reported some observations on fatty extracts from organs. He had been working on the extracts, from kidneys especially, for a year or two, his attention having been called to the subject by a question which came into his mind as to whether the fatty changes which are so familiar were really due altogether to the presence of neutral fat. He had speedily come to the conclusion that what was usually regarded as fat was really not only neutral fats, but contained, in addition to this, a very considerable amount of other fat-like substances, among them lecithin and protagon. Quantitative analyses of these substances had been made with some degree of success, and it had been found that in fatty extracts from the kidney the amount of lecithin ranged from about 30 to 67 per cent. of the extract; showing that there might be as much or more lecithin or phosphorized fat as neutral fat in these organs. His reasons for using the kidney were, in the first place,

1. Holst. Norsk Magazin for Laegevidenskaben, No. 4, 1901. Reviewed in Deut. med. Woch., Litteratur-Beilage, 1901, p. 107. Simmonds. Deut. med. Woch., 1901, p. 353. Ling. Reviewed in Lancet, June 29, 1901, p. 1846. Duckworth. Medical Press and Circular, June 12, 1901. Canon. Mitteilungen aus den Grenzgebieten, vol. x, p. 419. Gabriol, Wien. klin. Woch., 1901, p. 1051. Huchard und Bergougnian, Journal des practiciens, Jan. 4, 1902. Galavardin, Cent. f. innere Medizin, 1902, p. 293. Brion. Deut. Aerzte-Zeitung, 1901, Nr. 18.

because the kidney was easily freed from obvious fat; secondly, because it hardly seemed probable that the kidney could be regarded as in any sense a normal fat depot. This was certainly not true of the liver. The results of examination of the liver varied somewhat from those of the kidney. One or two other organs had been examined in a less thorough way. The fact that these phosphorized fats were so uniformly present in the cells and were really so abundant, making up something like 6 to 8 per cent., in one case 10 per cent., of the total solids of the organ, suggested that they were very important cell constituents, and furthermore suggested that possibly some of the fat found in the different forms of degeneration might be in part lecithin or phosphorized fat, in part, a neutral fat derived from the fatty acids they contained, since the fatty acids might be split off from these phosphorized fats. It was interesting in this connection to recall some observations made by Albrecht, published in the Transactions of the German Pathological Society, in which he calls attention to the fact that there are certain minute structures in cells which are double refracting. These are double refracting substances. Albrecht called attention to the fact that these fine granules ("liposomes") occur in the heart in a series of rows lying between the longitudinal striations of the muscle fibers, and also to the fact that the fatty granules first appear in this situation in fatty changes in the heart. He is inclined to think that substances like protagons may become modified in such a way as to give rise to these fat droplets. There was one very extraordinary physical quality of these phosphorized fats, and that was their power of taking up water and producing myelin forms so that a mere trace of lecithin put on a slide and moistened would make a hundredfold its bulk of myelin figures. It seemed to absorb water and swell up with interesting and curious motions, growing so fast that one could watch its development. It had been suggested that these phosphorized fats and lecithin-like bodies or lecithins might be a very important constituent in cytoplasm in causing the other constituents to assume and maintain the form of an emulsion in which the bodies in solution are separated into droplets by a film of myelin substance very sensitive to variations in the amount of moisture. Perhaps the changes which are known as parenchymatous or fatty degenerative changes, might have to do with modifications in this emulsion in which these myelin films may form essential parts. Possibly in the minor degrees of these changes we may have more imbibition of water through osmotic pressure. In the more chronic fatty changes it is possible that we have a chemical change in the myelin substance. It was pretty certain that a complicated molecule like these lecithins, present in the cell in such abundance, must be of deep significance. So far as microchemical staining reactions go, the lecithins will take up those we are accustomed to use for neutral fats. It is more possible to make a distinction by means of polarized light. Many of these substances are double refracting, but it is exceedingly difficult to make very accurate observations respecting double refraction on minute fatty granules.

A Note on a Peculiar Action of a Streptococcus on Blood Plates.—It has been repeatedly noted by Dr. E. Libman in studying the growth of streptococci on plates of blood-agar that the streptococci vary as to their influence on the surrounding medium. Some will cause a disappearance of the blood in a larger or smaller area about the colony and some will not have any effect of this kind. Some authors are of the opinion that the hemolytic effect, so-called, varies in accordance with the virulence of the organism. This we have not found to hold. The streptococcus on the plates which Dr. Libman showed was isolated by Dr. Bauman from the blood of a case of phlebitis and periphlebitis of the leg. On the blood-agar plates it was noticed that after twenty-four hours the organism was surrounded by a clear area. Surrounding this clear area the blood on the plate was darker in color than on the rest of the plate. After forty-eight hours a second clear ring appeared outside of this area of darkened blood. In one observation the process extended so that there were three clear concentric rings about the streptococcus colony. It was very difficult to explain how the organism could produce a result like this.

MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK.

Stated Meeting, held March 13, 1905.

The President, Thos. E. Satterthwaite, M.D., in the Chair.

The Constitutional Treatment of Bright's Disease.—Dr. W. H. Porter read a paper on this subject. (To appear in a subsequent issue of the MEDICAL NEWS.)

Recent Advances.—Dr. R. W. Wilcox said he entirely agreed with Dr. Porter as to the fact, now clearly established, that in chronic interstitial nephritis the condition is not limited to the kidneys, but is widespread; implicating the arteries especially and extending to every tissue of the body. One of the points of importance which had recently been brought out was the impermeability of the kidney to sodium chloride. This found expression in the amount of anasarca present, and by regulating the amount of sodium chloride ingested, good results could sometimes be obtained. By the daily weighing of the patient the quantity of sodium chloride it was necessary to take out of the food could be ascertained. Another point was that the diminution of the fluid ingested had often been found to be accompanied by an increased amount of dropsy. Dr. Wilcox gave a note of warning against the use of so-called diuretics. Even the drugs that were supposed to be least irritating might be followed by serious injury. In chronic interstitial nephritis (the arterial type) he said it was possible to make a diagnosis by means of the sphygmograph before there was any evidence presented by the urine, and long before the development of any changes in the eye.

The Advantages of Erythrol Tetranitrate.—Dr. Porter had spoken of the utility of nitroglycerin in this affection. He himself believed that much better results could be obtained with erythrol tetranitrate, which is official in the British Pharmacopœia. By means of this drug the characteristic effects of the nitrites were produced more slowly and gradually, and lasted for a much longer time.

Lumbar Puncture and High Intestinal Irrigation.—In the persistent headache not infrequently met with, and also in preventing coma and convulsions, good results were now often secured by the use of lumbar puncture. This measure was purely symptomatic, however, and had no curative agency. If he were to mention any one thing that was of special value it would be the systematic use of high intestinal irrigation, as practised by Kemp. By means of it he had seen comatose patients snatched from the very jaws of death, and afterwards restored to a moderate degree of usefulness.

Lavage of the Renal Pelvis in the Treatment of Bright's Disease.—This was the title of the second paper, by Dr. Winfield Ayres (published in the MEDICAL NEWS, July 1, 1905, p. 7).

The Treatment of Pyelitis.—Dr. H. A. Kelly, of Baltimore, read the last paper of the evening, on this subject. He said that pyelitis might be of all grades of severity, and he desired to call attention to the great importance of appropriate treatment in the milder forms with a view to the prevention of the very grave consequences liable to result from the neglect of these. The advanced grades, such as pyelonephrosis and pyelonephritis, were everywhere recognized as surgical conditions, but if the attention of the profession could be directed to the early stages of pyelitis, it would be found that these cases were amenable to simple treatment. Nature's methods of cure were always suggestive, and what nature suggested here was irrigation. One plan of treatment was the expectant; keeping the patient in bed and giving plenty of water. Urotropin was about the best drug that could be used in these cases. Another method was to employ irrigation by means of ureteral catheters, and very small catheters would usually answer for this purpose. Strictures of the ureter were sometimes met with. In one instance that he had seen the stricture was in the vesical mucosa, and this he had been able to completely do away with by snipping with scissors. When the stricture was more deeply seated, catheters of various sizes were required, and sometimes metallic instruments were called for. Stone in the kidney was sometimes met with. Another class of cases was that associated with a low grade of hydro-nephrosis. Dr. Kelly expressed the opinion that a good many appendices and a good many ovaries and tubes had been removed from patients in whom this was the real source of trouble. He narrated a case in which there had been persistent localized pain for a long time, and when he slowly injected fluid into the kidney on the side affected the patient was able by her sensations to locate at once the seat of the pain. This case promptly yielded to treatment. In one case of pyelitis affecting both sides he found it necessary to amputate both ureters and make an anastomosis with the bladder. The point that he desired to make was that while the severe grades of pyelitis called for radical surgical procedures, the milder ones might be successfully treated by catheterization and irrigation, with urotropin internally.

Dr. Ayres' Statements Corroborated.—Dr. F. M. Johnson, of Boston, said that from an experience of a considerable number of cases he could confirm the statements made by Dr. Ayres. These were private cases which had been referred to him after treatment of all kinds, with very little benefit. He had added the lavage, at the same time maintaining other treatment, and marked improvement had often resulted. It was astonishing, he thought, how little lavage, even of the bladder, was made use of by the profession. Lavage of the kidney was no more dangerous than that of the bladder if it were performed skillfully and under proper precautions. Our knowledge was constantly being increased by contributions in one direction or another, and lavage of the renal pelvis seemed to him to be a measure worthy of careful consideration.

The Test of Time Required.—Dr. G. M. Edebohls said that in the present state of the treatment of Bright's disease any addition to our resources would be most welcome. At this time, however, it was absolutely impossible to arrive at any positive conclusions as to the value of Dr. Ayres' procedure. Only nine or ten months had elapsed since he had made it known, and it was essential that it should be tested by the observations of several years. He could not agree with Dr. Ayres that a diagnosis of incipient Bright's disease might be made on the presence of a little albumin and a few granular and hyaline casts in the urine. All these signs were sometimes to be found with a movable kidney, and might entirely disappear after fixation of the organ.

Pain in Hydronephrosis.—He agreed with Dr. Kelly in regard to the pain met with in hydronephrosis, and felt sure that ovaries and tubes, and even the uterus itself, had sometimes been taken out when the real trouble was in the kidney. It might be that it was movable kidney in some instances which caused the slight hydronephrosis spoken of by Dr. Kelly.

Ureteral Catheterization a Difficult Procedure.—He did not think it would be right to resort indiscriminately to catheterization of the ureters, as this required special skill. There were fewer men able to do this, he believed, than to perform a major operation on the kidney. With these limitations he desired to endorse the papers of the evening.

The Curative Effect of Lavage Hard to Understand.—Dr. Willy Meyer said that Dr. Kelly had an advantage over the general surgeon in the fact that all his patients were women, as ureteral catheterization was a much simpler matter in the female than in the male. As to Dr. Ayres' treatment of Bright's disease, he thought it difficult to understand how lavage of the renal pelvis twice a week could exert any positive influence on the entire parenchyma of the kidney, considering the comparatively large size of the organ.

The Treatment Does Not Seem Philosophical.—Dr. F. Bierhoff said that he had to confess that the more he had seen of ureteral catheterization the more had he become convinced that the best treatment for pyelitis is rest in bed. Only in the severe cases did he think this procedure should be resorted to. As to the treatment of Bright's disease by lavage, this did not seem to him at all philosophical. The fluid injected was confined entirely to the pelvis and calices, while in this affection we had a process which had its origin in the remote tissues of the kidney; and he failed to see how the Malpighian bodies could be affected in the slightest degree by such treatment. In order to take the place of any accepted method of treatment a proposed method must accomplish at least as much, if not more than the other; this had not been demonstrated here. Dr. Ayres had stated that the albumin and casts diminished, but this result could be secured by simple rest in bed and in various other ways. He did not think, therefore, that he (Dr. Ayres) was justified in making any claim, since the same results could be obtained by much simpler methods. The only surgical treatment of Bright's disease which had as yet proved of real value was Dr. Edebohl's renal decapsulation. If this disease ordinarily originated from an extension of inflammation from the renal pelvis, lavage might seem to be indicated, but the whole trend of authoritative opinion was just the reverse of this, recognizing that the process originated in the remote tissues of the kidney.

The New Theory Untenable.—Dr. A. Lapowski said that Dr. Ayres had invented a new theory, and it was not tenable. He had based the supposed efficacy of lavage on the benefit derived from washing out the renal pelvis. But it was not possible to thus wash away gonorrheal infection. The gonococcus would stick, no matter how thoroughly the lavage was carried out, and it could be removed only by means of a curette. He also thought Dr. Ayres' method attended

with considerable danger, as the parts were not in the same condition as in the normal kidney.

The Term Bright's Disease Should be Abandoned.—Dr. A. A. Berg thought the time had come when the term Bright's disease should be given up. The cases should be designated as chronic nephritis. It was very difficult, he said, to understand how lavage of the renal pelvis could have any effect on such a condition. If we really had an inflammation ascending from the bladder, accompanied by obstruction, the condition might no doubt be benefited by the use of lavage, but this was not the usual history in chronic nephritis.

Dr. Ayres, in closing the discussion, said that in his cases it was a fact that, notwithstanding various other measures employed to prevent the occurrence of casts and albumin in the urine, they continued to develop; and that under the use of lavage they progressively diminished. He had been very careful to state that lavage was applicable only in selected cases, and he had claimed for it only such results as, within the limitations he had specified, actual experience had shown to be fairly attributable to its effects. In interstitial nephritis no benefit was derived from lavage, except at the very beginning of the process. He was sorry that Dr. Johnson had not given more details of his cases, as he had had the same experience in Bright's disease that he himself had met.

TENNESSEE STATE MEDICAL ASSOCIATION.

Seventy-second Annual Session, held at Nashville, April 11, 12 and 13, 1905.

The Association met at Watkins' Hall, under the presidency of Dr. Paul F. Eve, of Nashville.

Prayer was offered by Rev. W. M. Anderson. Addresses of welcome were delivered on behalf of the city by Mayor A. S. Williams, and on behalf of the medical profession of Nashville by Dr. Geo. H. Price, the response to which was made by Dr. H. Berlin, of Chattanooga.

Melancholia.—Dr. S. T. Rucker, of Memphis, read a paper on this subject. He defined the disease, and then referred to the etiology, symptoms, varieties, pathology, diagnosis, prognosis, and treatment. Heredity was encountered in about 50 per cent. of the cases. Ill health, mental strain, worry over financial affairs, domestic troubles, and disappointment in love were also factors largely responsible for most cases of melancholia. Auto-infection undoubtedly played a considerable rôle in some cases. Pregnancy, especially in primiparæ, was an aggravating cause, and generally began about the third or fourth month. The puerperal state did not so often produce melancholia as pregnancy and lactation. Severe forms of agitated melancholia were occasionally associated with chronic alcoholism. The sobering-up after a prolonged spree or debauch would precipitate an acute attack of melancholia, not infrequently ending in suicide. The onset of melancholia was almost always gradual. At first it might be only a feeling, which took no definite shape, and there might be no delusions. Every thought and everything in the environment had a sorrowful color. When questioned, the patient would simply say he felt depressed, or he had the blues. The morbid feeling constituted the disorder. The symptoms varied from a simple state of dejection to a state of profound depression, in which the patient was either paralyzed by the dreadful nature of his concepts, or was thrown into a state of agitated suffering, associated with marked precordial distress and peculiar pains in the back or top of the head. The author mentioned three varieties of melancholia, the acute, subacute, and chronic. There was no known pathological anatomy for melancholia. It was considered a functional disease of the brain. Melancholia could hardly be mistaken for acute mania, as in melancholia there was a slowing of the thought process; while in acute mania there was an accelerated flow of ideas, and the mania was unusually cheerful and talkative. The prognosis in melancholia was very favorable. Fully 90 per cent. recovered. Thorough investigation, speedy separation from relatives and friends, and an early commitment to an institution for treatment should be the rule in this class of patients.

Dr. M. Campbell, of Knoxville, said that melancholia agitata and simple melancholia were symptoms of but one and the same disease. Melancholia itself was not, strictly speaking, a mental disease, but a symptom of a pathological state that underlay the symptom of depression that was most prominent, whether it be an organic or functional disease, but most generally it was functional. A large percentage of the cases of melancholia that were sent to hospitals for the insane did not recover. He did not think half of them got well. As to the treatment, he suggested a change of scene, getting away from the conditions that produced the disease, building up the patient physically, giving hypnotics to produce sleep, warm baths, etc.

Dr. W. J. Breeding, of Taylor's, related the history of a woman, forty-two years of age, mother of eight children. In the family history there was insanity in an aunt. He was called to see her in a former pregnancy, when she was very hysterical, and was troubled with nausea and vomiting. He saw her in the sixth week of pregnancy, when she was in a very depressed condition. He made a diagnosis of hysteria. The woman recalled her experience in a former pregnancy, and said she could not live through this one, believing she would have a repetition of nausea and vomiting. There was no pathological condition, so far as could be determined. She had numerous delusions up to the seventh month of pregnancy, when a miscarriage occurred, the fetus being badly deformed. It was thought she would now get well, but in a couple of weeks she lapsed into a condition of melancholia, eked out a miserable existence for two or three months, and then committed suicide by hanging.

Dr. C. P. McNabb, of Knoxville, mentioned two cases, in neither of which would the family consent to sending the patient to a hospital. One patient had three attacks of melancholia, with three partial recoveries. The other was now in her third attack.

Dr. A. F. Paschall, of Crossland, thought that in the case of young men advertising literature played an important rôle in the cause of melancholia.

Dr. S. S. Crockett, of Nashville, said there was a popular impression that there was an insanity that developed in puerperal women that differed from other forms of the disease. There never was a greater mistake. Pregnancy and lactation should be regarded as one factor that might produce insanity in a woman who was otherwise predisposed to it.

Dr. Louis Leroy, of Nashville, agreed with Dr. Crockett, that there was no special type of insanity peculiar to the pregnant woman. The condition had been recognized as an etiological factor, possibly

as the exciting cause of the disease, to such an extent that even though incorrect from the standpoint of pathology, clinically the term puerperal insanity was recognized both professionally and by the laity. The probability was that the causes were few in number: First, that the shock to the nervous system resulting from the profound changes occurring in pregnancy might bring on an attack which was impending, or accentuate the nervous disturbance, otherwise held under control. On the other hand, many cases were the result of auto-intoxication.

Dr. S. T. Rucker, in closing, said that melancholia recurred in some instances; but when the patients were carefully treated, recurrence would seldom take place.

Diagnosis of Kidney Diseases.—Dr. Louis Leroy, of Nashville, read a paper with this title, and, among others things, said that in renal diseases possibly more than in some other classes of ailments accurate discrimination in diagnosis was important with reference to the prognosis as well as treatment. It was a matter of some interest to a patient as to just what his life expectancy was, and how long a period he might expect to devote to settling estates or arranging business matters. The physician should exercise care and judgment in his diagnosis, as a failure to distinguish between the parenchymatous or interstitial nephritis, or to at once make a snap diagnosis of nephritis from a trace of albumin without further investigation of general clinical conditions and the exclusion of some other lesion microscopically, or a repeated examination, in the absence of casts, microscopically, to determine some cyclic or functional albuminuria, might render him with some justice a subject of ridicule, for which years of careful and conscientious work could scarcely atone. While malformation of the kidneys were of great rarity, their importance in surgical cases should cause the possibility to be constantly borne in mind. The absence of one kidney or fusion of both into one mass should be considered, and the presence of an organ on both sides determined, if possible, while debating the admissibility of operative measures. It was not always possible, and frequently quite difficult, to determine the presence of the kidney when in normal position, either by percussion or palpation, especially in patients with thick abdominal walls, or large, well-developed spinal muscles. In such cases the presence of the organ might be determined by the X-rays, or both ureteral orifices might be determined by a cystoscopic examination, in which case the presence of two kidneys might be considered as assured, the possibility of a single kidney having two pelves and ureters being so extremely slight as to be negligible. In case of movable kidney, however, it was usually possible to recognize the condition by palpation, sometimes assisted by percussion, and one might sometimes be surprised to find no clinical symptoms associated. With some cases, the kidney readily returned to its normal position, where it remained for some time, and it might be necessary to make several examinations at different times before finding it when displaced. In appendicitis the location of the point of tenderness, the usually higher temperature, absence of blood in the urine, tenseness of the muscles of the abdomen and flank, and the increase of polymorphonuclear leucocytes in the blood should direct attention from the kidney, especially if the mass could be palpated. Movable kidney in all its bearings was considered at length. Neuralgias were usually found in patients of a more or less neurotic temperament, and would not be found to be associated with hematuria. Ovarian inflammation might be puzzling, but one would usually be able to elicit some exciting cause, and local tenderness should be easily recognized by vaginal examination. Hematuria was absent and some endometritis was frequently associated. Diaphragmatic pleurisy would usually be influenced somewhat by respiration, even though the diaphragm be held rigid. There would be absence of abdominal breathing, and cough was usually present. The respirations were usually shallow and hurried, and early in the attack auscultation would frequently elicit the friction sounds. The essayist described the points of differentiation of kidney diseases from gastric ulcer, ataxia, chronic valvular diseases of the heart, and then referred at length to acute parenchymatous nephritis and acute interstitial nephritis. Pyelonephritis was usually secondary to some other infection below, but especially in typhoid or tuberculous infections might originate through the blood.

Perinephritic Abscess.—Dr. W. A. Bryan, of Nashville, discussed this subject, and the differentiation of this form of abscess from other abdominal conditions. He reported the following case: Mr. F., locomotive fireman, aged twenty-eight years, had no evidence of disease since childhood. In August, 1904, he got a superficial burn on his left olecranon, which became infected, but healed kindly. After a few days an abscess developed near the burn. This was opened and healed. A few weeks later three or four other abscesses formed around the site of the original abscess, were opened, or ruptured, and healed. In October he began to have pains in the lumbar region on the right side, and soon afterwards quit work and took to his bed. Pain in the right side was described as a "catch," and in his back there was constant aching. He became distinctly septic. Liver dulness was elevated one inch in the right nipple line; right side one and one-half inches larger than the left. Enlargement of the right loin was very perceptible, and fluctuation was present; pus on aspiration, and urine normal. December 15, 1904, the speaker operated, removing twenty-four ounces of pus. Patient improved, but had pain again from the beginning after the operation in his left side. It was aspirated, pus was found, and two weeks from the first operation a second one was performed, removing eight ounces of pus from the left side, after which patient made an uninterrupted recovery, and has since gained forty pounds. The pus gave a pure culture of *Staphylococcus aureus*. There was no connection between the two abscesses. He learned from the patient at the second operation that another surgeon had aspirated both sides and found pus before he saw patient.

Treatment of Hypertrophied Tonsils.—Dr. J. F. Hill, of Memphis, entered his protest against the promiscuous and wholesale excision of children's tonsils. There were three kinds of diseased tonsils: (1) A tonsil which was constantly swollen, red and easily irritated; this tonsil was of a specific scrofulous, or tuberculous nature, and the only logical method of dealing with it was by excision. (2) A tonsil which was diseased in the interior, which formed ocasionally into an acute abscess. (3) A tonsil with ulcers on the surface, which might be either indolent or active, and were easily managed by a two per cent. solution of nitrate of silver. As to treatment, tonsil No. 1 was treated by complete ex-

cision. Tonsil No. 2, which was diseased internally, had openings leading from the surface to the interior, and at the bottom of these openings there was a quantity of fungous tissue, with the formation of acute abscesses. The openings to the tonsils, as the crater was to the volcano, allowed the escape of diseased mucus from the interior of the tonsil. When these openings were closed from cold, or otherwise, the mucus was retained and decomposition set up; hence an abscess. Tonsil No. 3, which had ulcers on the surface, could be relieved with 2 per cent. solution of nitrate of silver, but tonsil No. 2 gave considerably more trouble. His method of treating tonsils of this character was to pass a small curette through these openings into the bottom of the tonsil and remove all the diseased or granular tissue, then carry a 10 per cent. solution of nitrate of silver into the tonsil. This should be repeated in from three to six days, and continued until the tonsils were cured, which usually required six treatments. By this method the tonsils were cured and left to perform their natural functions. He laid down two general rules: (1) Cure all tonsils which could be cured, and leave them intact. (2) Excise all tonsils which could not be cured.

Treatment of Hypertrophied Tonsils.—Dr. J. T. Herron, of Jackson, in a paper on this subject, quoted from some of the best authorities, to show the importance of removing hypertrophied tonsils by some operation, and not allow them to remain, thus weakening the mental and physical strength of boys and girls. He detailed a number of cases upon which he had operated with gratifying results. Advice properly given would do much to dispel from the minds of the laity the old idea that hypertrophied tonsils must not be removed.

Dr. G. C. Savage, of Nashville, said it was a great mistake to allow children to go on from year to year with enlarged faucial tonsils, especially if they were subject to repeated attacks of inflammation. There was no harm from clipping a tonsil unless the child should happen to bleed to death when the operation was done. This rarely occurred. A tenotome, shaped after the manner of the tonsillotome, was just as easy to use on the pharyngeal tonsil as the tonsillotome on the faucial tonsil.

Dr. T. J. Happel, of Trenton, preferred Tiemann's tonsillotome for removing tonsils. He had tried the scissors and other instruments, but said the practitioner should select that instrument which was best adapted to his use, then the work could be done more successfully.

Medical Ethics.—Dr. T. J. Happel, of Trenton, read a paper on this subject. He said it was to be regretted that most graduates left medical colleges with a vague sort of idea that there used to be in the dim past a set of rules governing the relations of medical men to one another, to their patients, and to the public at large, but that since nothing had ever been said to them by their professors upon this subject, those rules had long since passed into innocuous desuetude. In many instances they soon became imbued with the idea set forth by a certain lecturer of the importance of "getting there," and that they laid down for their own guidance "get there" in any way one could, provided he did not violate the eleventh commandment. They followed their own golden rule as written and interpreted in these days of greed for gain—do unto the other fellow as you would expect him to do unto you if he could, and do it first.

Origin and Treatment of Malignant Growths.—This was the title of the President's address, delivered by Dr. Paul F. Eve, of Nashville. He mentioned two varieties, one of the epithelial type of cells known as carcinoma; the other of the endothelial variety, or connective tissue cells, known as sarcoma. Both of these in many respects presented clinical features very much alike. He referred to the theory that cancer is due to parasitic origin, but said he was very much more favorably impressed by the other theory, which bases the origin of cancers upon cell proliferation. Assuming that this disease was due to cell proliferation, if one could in any way check or change these cells, he had the promise of an ultimate success and recovery. About two years ago he operated upon a lady for scirrhous mamma, with involvement of the neighboring glands. A very complete operation was made, and every vestige of the disease removed, so far as could be discovered. Her recovery seemed complete in every respect, and he flattered himself that there would be no recurrence. Four months after the operation she returned with a reappearance in the scar tissue. A second operation was performed, consisting of curetting the diseased structures. The patient was subjected to treatment with the X-ray for four weeks. At first improvement was noticed, but at the end of the third week the wound looked very unhealthy, and at the end of another week the patient returned to him, appealing, as all those unfortunate cases do, for some means to save her life. The appearance of the ulceration was foul and fungous, and every indication pointed to general infection and a speedy death. He began to treat this wound with balsam of Peru, after first irrigating with bichloride of mercury, 1-3,000. After the first few days the unpleasant odor ceased, and he was surprised to notice a decided change and granulations of a healing nature springing up in the wound. This treatment continued for five weeks, with an occasional touching up of the granulations with the solid stick of nitrate of silver. At the end of this time the wound was entirely healed, and the patient looked the picture of health. He had the pleasure of seeing this patient a short time ago. There was not the slightest evidence of any recurrence, and the woman was in excellent health. Since this case he had had quite a number of other cases, which had been treated in a similar manner. Improvement had been marked in every instance, and the ulcerations from the foul and fungous condition had assumed healthy granulations, healing occurring slowly, but effectually. He cited two more cases.

Gastric Dilatation Without Stenosis.—Dr. Fenton B. Turck, of Chicago, discussed the pathology of this subject. He cited the class of cases usually observed, and advanced the statement that many severe diseases may go on indefinitely without symptoms and without serious consequences, but as soon as there was gastric atony and dilatation, the medical adviser was called in for the relief of pressing symptoms. In childhood the dilatation was usually acute, due oftentimes to indiscretions in diet, but the stomach proved its own best relief by ejecting the cause of the trouble, giving itself the only remedy required—rest. In these cases the symptoms were mostly confined to vomiting, and rarely proved troublesome, yielding readily to treatment by rest. In adults the severest lesions might have been present for indefinite periods of time—gastroptosis from various causes; gastritis, either acute or chronic, including atrophy, and yet the symptoms be wholly absent. But when gastric atony with dilatation supervened, there were at once symptoms of a most positive character; and many diseases that progressed to a

fatal ending without recognition were on post-mortem examination discovered to be gastric atony with dilatation, the fundus of the stomach often resting on the pelvic apparatus. He drew a picture of the mechanical movements of the stomach and of the physiology of its action, the non-activity of the cardia in the process of digestion, excepting for the chemical action that took place there, and the expulsive movements of the pyloric portion in rhythmic waves. At this point he outlined a number of experiments to show that it was not due to any stimulation of the stomach contents that caused the muscularis of the stomach to begin activity. In the laboratory he had introduced into the stomach of dogs hydrochloric acid, the starches, peptones, albumoses, and the like, none of which had the slightest effect in causing muscular contractions of the stomach. He had, after all chemical and physiological means of stimulation had failed, introduced water in varying quantities, and air—immediately upon which the stomach action began—deciding, according to his view, that stomach muscle movement was wholly due to distention. Taking up the question of the actual conditions present in stomach fatigue, Dr. Turck cited the findings of Helmholtz and others, who had determined the purely chemical nature of the state, and of Mosso, who, upon injecting the blood of a fatigued animal into the circulation of one not under fatigue, had brought about a precisely similar state. These facts had led unavoidably to the conclusion that some changes had taken place in the blood itself; that there had been formed in the process of metabolism certain products which, for want of a better name, must be known as toxins, and that these toxins were capable of vast reproduction, if not interfered with, or unless antipoised. Dr. Turck had made exhaustive experiments along the same line in the laboratory, using dogs, rabbits, guinea-pigs, and horses. He had been able to inject the toxins of fatigue into the circulation from one animal into another, and had been able to accomplish fatigue even to the point of death. The profundity of the infection depended upon the completeness of the fatigue in the animal previously prepared and the amount of the toxins injected. But he had decided, and his experiments were bearing fruit, that if metabolism created products which were toxins, and that the stomach muscles which had created these toxins were capable of renewing their function after a period of rest, then it was inevitable that these toxins had their antibodies in the circulation; that when the state of fatigue had commanded the muscle to rest, that is, to cease creating these toxins, then it became a matter of time when the antibodies in the circulation would be in the majority, and by their presence restore the muscle to its former state. He deduced from these experiments, as well as from the nature and course of fatigue in the stomach, that rest was the means at hand for the cure of the condition. In dietetics no fast and hard rule could be laid down, the prime requisite being to give the greatest possible amount of rest, the shortest possible period of muscular activity, and the most serviceable foods to maintain the strength of the patient. He preferred two meals daily at the outset of treatment, one in the morning and one in the evening. Theoretically, a liquid diet was preferable, but practically he employed solid food in a finely divided state, properly prepared, with a sufficient amount of liquid to aid the stomach in the maceration of the mass, and to the end that it might be easily propelled into the intestines. If 3,000 calories were required of a mixed diet under normal conditions, it would be well to cut this down to 1,000, or even less, at the outset. For example, 100 grams breast of chicken, finely divided; 100 grams mashed potatoes, 100 grams toasted bread, 30 grams of butter, 300 c.c. hot, rich milk, which was first coagulated with rennet, in order that it might not be coagulated in the stomach, then shaken back to liquid and heated. Meat, macreated in water, then pressed for its extracts, crushed crackers, hard boiled eggs, and a bit of bran or ballast was another favorite form of diet for a change. If there was persistent anorexia the patient would lie on the right side for two hours following the meal. In connection with the diet, certain mechanical methods were employed, most of which he had found to be fruitful of harm rather than good in these cases. Lavage, galvanic and faradic electricity, exercise, and the more or less systematic bathings and drugs were some of the means which Dr. Turck failed to appreciate. The high frequency current with Oudin resonator he had found sometimes of advantage as an adjuvant.

Food Adulteration in Tennessee.—Mr. Lucius Brown, chemist, of Nashville, in a paper on this subject, said that milk was peculiarly liable to sophistication on account of its perishable nature and the readiness with which it could be adulterated. This took the form of watering, thereby reducing the quality, and the addition of preservatives to conceal or prevent decay. There was no form of food adulteration which was meaner than this. Milk was the standard food of young children, and was largely used for invalids, and the addition to it of such materials, which had a directly injurious effect on the digestion, and usually only took down the danger signal without removing the danger, should be relentlessly and severely punished. An examination of pure food legislation showed that twenty-two States had a regularly organized food inspection department. It was significant that Kentucky had just increased its appropriation for this purpose from $7,500 to $10,500. For the proper enforcement of pure food laws a qualified analytical chemist was an absolute necessity. Not less necessary was a wise and active pure food commissioner. There need be, on the part of the retailer, no fear of a hardship being worked on him by a proper enforcement of food legislation. He was always given an opportunity to put himself right, if he desired to do so, under any food laws. But in order to reassure him most States allow the retailer to be exempt from conviction if he produced a written guarantee from the wholesaler or his agent resident within the State.

Early Diagnosis and Early Treatment of Otitis Media.—Dr. N. C. Steele, of Chattanooga, said that careful observers knew there was a large number of adults who were permanently deaf in one or both ears. Of every one thousand seriously deaf ears, perhaps in 999 the disease was otitis media, and every aurist knew that chronic otitis media was generally incurable. He pointed out the general management and treatment of these cases, and closed by saying that the physician who looked carefully and intelligently after the patient's general health, as well as the local treatment, would have the greatest success in otitis media, just as he would in other local diseases.

Tuberculosis Cutis.—Dr. J. M. King, of Nashville, discussed this subject. He pointed out how the

initial skin lesion was formed, and discussed the differentiation of lupus from rosacea, eczema, and blastomycosis, which he said was rarely necessary. Radiotherapy, Finsen light, and violet rays were at present considered the most acceptable method of treatment, and should always be used if the patient was in reach of it. The X-rays and Finsen light were both satisfactory, but the ideal treatment was the combined use of X-rays and Finsen light.

Gastro-Intestinal Diseases of Children in Summer.—Dr. Zeb. L. Shipley, of Cookeville, divided the acute diarrheas of infancy on the basis of their etiology into two main classes, namely, those due to nervous origin, and those due to infection. Simple diarrhea was of nervous origin, manifested by an increased peristalsis. This increased peristalsis might be caused by various conditions acting through the central nervous system, or by the mechanical action of undigested food. Among the most important factors acting through the central nervous system were sudden changes in temperature, prolonged exposure to heat or cold, fright and fatigue. Food might fail of digestion from being unsuitable, or from the digestive organs being functionally weak. In either case the food became a foreign body. In this form of diarrhea the intestinal mucous membrane showed no pathological lesion, unless it be a slight hyperemia. The stools were increased in number and fluidity, and usually contained particles of undigested food. The chief factor in the treatment of this form of diarrhea was the removal of the cause. If the alimentary canal contained undigested food, this could best be eliminated by giving fractional doses of calomel and sodium bicarbonate, often repeated, until one or two grains had been given, or castor oil given in teaspoonful doses acted admirably. The cause having been removed, the diarrhea usually ceased. But should it continue, the treatment should be directed to the control of the excessive peristalsis. The author next devoted considerable attention to infective diarrhea, and said in the prophylactic treatment of it the infant should have the best possible hygienic surroundings, be given plenty of fresh air, and bathed frequently. Care should be taken not to overfeed the infant, as less food was needed in warm weather than in cool, and owing to the depression produced by the heat the child was less likely to digest its food. The infant should be lightly clothed, and kept as quiet as possible.

How Shall We Feed and Treat the Baby?—Dr. Herman Hawkins, of Jackson, in a paper with this title, laid down three cardinal rules: (1) A food should be given the baby which could be assimilated and given at regular intervals. (2) One should obtain the best possible hygiene of person and surroundings. (3) As little medicine as possible should be given. Each rule was discussed at considerable length, and several cases were reported.

Amyloid Degeneration.—Dr. C. P. McNabb, of Knoxville, defined this disease, and then discussed its etiology, pathological anatomy, symptoms, diagnosis, differential diagnosis and treatment. Treatment consisted of removal of the cause. If syphilis or chronic malarial cachexia was present, the patient should receive proper medication. If there was a chronic suppuration, the surgeon should be called early, and pus evacuated. The physician should be very watchful in cases of hip joint disease, old pyosalpinx, and ileorectal abscesses.

The More Serious Complications of Grippe.—Dr. E. A. Cobleigh, of Chattanooga, said that one of the primal results of influenza which was impressed upon him early was not simply the usual debility which accompanied most of the cases, and seemed out of all reasonable proportion to the appreciable conditions presented, but its indefinite persistence and extreme degree in quite a good many cases. These patients, wholly without regard to age or previous vigor, were too feeble for any movement or exercise beyond the minimum of vitality required to stay alive. This one element of debility—passive existence alone—was profound, and the sole cause for uneasiness. Instead of recovering within ten days or a fortnight, most of these sufferers lingered for weeks, sometimes even for months, and not a few dwindled on for a year or two, to die of sheer exhaustion at last. Cases were cited in point. The next condition, often occurring by itself, was marked by extreme nervousness. A third condition, not very frequent, but seen often enough to impress the clinician, was marked by mental involvement, occasionally amounting to prolonged delirium, to stupor little short of coma, to hallucinations during or even after convelescence from the real attack, and rarely to mania or continuing insanity. One of the most impressive and rare complications of grippe which he recalled ever having seen consisted in extreme clonic spasmodic seizures, particularly involving the heart, the diaphragm, and the muscles of respiration, with perfect mentation during it all, but giving rise to the most pitiable agony of fear of impending death. The writer discussed several other complications of influenza, and closed by saying that his object was to sound a note of danger, and to awaken physicians to the frequency of complications, and insisting on their prompt recognition.

Clinical Significance of Ascites.—Dr. Raymond Wallace, of Chattanooga, discussed this subject, and reported two instructive cases. One case illustrated unusual difficulty of making an accurate diagnosis. The unusually pronounced alcholic history in this case, with excessive peripheral arteriosclerosis, taken with the gastric symptoms and the presence of ascites, naturally led to a diagnosis of atrophic cirrhosis; and the absolute absence of any cirrhotic changes in the liver was a point of interest. The disappearance of the miliary carcinosis of the peritoneum after scrubbing and exposure to the air presented a phase analogous to the operative cure of miliary tubercle of the peritoneum.

Acute Septic Osteitis.—Dr. Jere A. Crook, of Jackson, stated that his experience in the treatment of this disease comprised only a few cases, and the greater number of them did not come under his treatment until they had become chronic. He presented a specimen of a tubular sequestrum that he removed from the femur of a ten-year-old boy. This was a case of chronic osteomyelitis that had been discharging freely for several months. Upon cutting down upon the femur a large cloaca was found, and a freely movable sequestrum. The opening was enlarged with a chisel, the sequestrum removed, and almost the entire cavity of the shaft was curetted. It was irrigated and packed with gauze and allowed to granulate from the bottom. Another case was one that he saw in connection with his father. This was a severe case of chronic osteomyelitis of the femur in a twelve-year-old boy. The disease had existed for a year, and the necrosis had progressed so far that the shaft of the bone was entirely consumed for about two inches. The ends of the remaining bone in this case were rounded with bone forceps,

all loose pieces removed, the two freshened ends put in apposition, drainage inserted, and the limb encased in splints. The result was unusually good. The bone united, the wound healed entirely, and the patient had a useful leg with only about three inches of shortening. Here amputation seemed indicated, but conservative treatment saved the limb. He had only amputated twice for esteomylitis, and then after making every effort to save the limb. Amputation should be the dernier resort, only to be done when necessary to save life. Other similar cases were reported.

Prophylaxis of Tuberculosis.—At the evening session of the second day this subject was discussed largely for the benefit of the laity, and speeches were made by Dr. John A. Witherspoon, Rev. Collins Denny, Captain A. J. Harris, and Mr. G. H. Baskette, representing the lay press.

Gall-Stones in the Common Duct.—Dr. W. D. Haggard, of Nashville, read a paper on this subject. He said that gall-stones in the common duct had been found once in every five cases operated by Robson, and once in every seven cases of the Mayos. It was estimated that 67 per cent. occurred in the duodenal end, 15 per cent. in the hepatic end, and 18 per cent. in the middle of the choledochus. They varied in size usually from a split pea to a nutmeg, although exceptional instances of much larger stones had been recorded. They were usually solitary, although more than one was frequently found. Freeman, of Denver, removed thirty-seven. They usually caused death in from six to twelve months, from cholemia, if the obstruction was complete and unrelieved. He had seen death ensue in six weeks, from cholemia and infection. He spoke of the colics being unsucessful in the majority of cases, and even when stones had been expelled it usually meant that others were retained. He exhibited eight stones removed from the common duct, after the patient had passed forty-five by the bowel during a period of five years, but had had no jaundice except once, for a period of two days. The duct was dilated so much that the bile escaped alongside of the stones. Stones were about as liable to ulcerate into adjacent viscera as to pass into the intestines. The ball-valve stone of Fenger, with its alternate stoppage and escape of bile, with varying jaundice, gray, then brown stools, was described. The pain, rigor, followed by a rapid rise of fever, sweating, sudden drop in temperature to normal, the appearance of jaundice, lasting a few days, and tenderness on pressure under the ribs, were described as a characteristic sequence in common duct stones, which might be repeated every few days or weeks. Suppurative cholangitis, acute and chronic pancreatitis, were detailed as complications. The absence of jaundice in 35 per cent. of Kehr's cases was dwelt upon, and the occurrence of primary cancer of the gall-bladder or ducts in 5 per cent. of the Mayos' cases, was mentioned. Absence of enlargement of the gall-bladder, with stone in the common duct, was explained in consonance with Courvoisier's law, and enlargement of the gall-bladder from other obstructions of the duct was instanced among many other differential points between calculus and non-calculus obstruction. Operation was not urged in acute obstruction by stone, but recommended in all cases that had been in existence for several weeks or longer, unless there were ecchymotic spots from long-standing cholemia. A quiescent interval between ague-like attacks, and in the absence of jaundice, was recommended for operation, if such an interval could be attained. Many specimens illustrating the various sizes, shapes, complications, and special symptoms of duct stones were exhibited. Choledochotomy and cholecystotomy were shown by large drawings. The Robson incision was recommended, and with a large cushion under the thorax the ducts could be brought almost to the surface by traction on the gall-bladder, and in a straight line; with the finger in the foramen of Winslow the stones could be palpated and extracted. The finger inserted into the duct, if possible, is said to be the best. The duct should be drained by tubage or gauze tied with catgut to the duct. Drains should be surrounded with gutta percha tissue. Cholecystectomy was advocated if one was absolutely certain of the patency of the common duct, if the gall-bladder was (*a*) contracted, suppurating, thick-walled and useless; (*b*) in gangrene; (*c*) neoplasms; (*d*) fistula into other viscera, and (*e*) in obstruction to the cystic duct. Robson's mortality in choledochotomy was 5 per cent. in the last 21 cases; 6.5 per cent. in 137 of Kehr's cases; 7 per cent. in 137 of the Mayos' cases, with an additional 4 per cent. who survived the operation, but died some weeks after. The Mayos did 30 consecutive cases without a death.

Circumcision.—Dr. E. A. Timmons, of Columbia, read a paper on this subject, in which he discussed its technic, method of anesthesia, after-treatment, and reported several cases.

Appendicitis.—Dr. John A. Gaines, of Nashville, read a paper on this subject, in which he cited several anomalous cases of this disease.

Etiology and Pathology of Appendicitis.—Dr. Walter Lenehan, of Nashville, contributed a paper with this title, which was based on the examination of twelve cases, which were reported in detail, after which the author discussed the etiology, prediposing causes, and immediate causes. He had found the following organisms in his cases: *Bacillus coli communis, Streptococcus pyogenes aureus, Staphylococcus pyogenes aureus, Bacillus influenzæ, Bacillus typhosus,* Klebs-Loeffler bacillus, *Bacillus tuberculosis,* and *Diplococcus pneumoniæ.* Some non-pathogenic organisms, notably the gas bacillus and a few yeast fungi, were also found, but were invariably associated with one or more of the pathogenic organisms. The organism most frequently found was the colon bacillus. The author drew the conclusion that any micro-organisms capable of producing inflammatory changes in any part of the body might also produce the same changes in the appendix.

Laryngeal Diphtheria.—Dr. O. H. Wilson, of Nashville, stated that the objects of his paper on this subject were, first, to emphasize the importance of early mechanical relief when mechanical obstruction threatened life, and one should not delay until depression was marked. He should remember that rapidity of progress was the characteristic feature of laryngeal diphtheria. One did not know what would happen before his next visit. Second, that while in no other operation did skill show to better advantage, intubation was not a difficult procedure, but could be learned easily by practice. An early operation, though possibly awkward, was better than waiting to give a moribund case to an imported consultant. Moral: Don't wait; intubate.

Tabes Dorsalis.—Dr. G. P. Edwards, of Nashville, discussed this subject, saying that the disease predominated in males ten to one. A neuropathic heredity was an important predisposing factor. The disease might appear in childhood from hereditary

syphilis, but in the acquired form it occurred between twenty-five and fifty years of age, the greater proportion occurring about the age of forty years. The symptomatology of tabes embraced almost every function in the body, the clinical features of which could not be enumerated within the scope of a short paper; but the author mentioned the chief symptoms, and the more important clinical features. The treatment should be directed, first, to the removal of any syphilitic processes present, or suspected; to the improvement of the general health, to stimulate the function of the cells impaired but not lost, to encourage restoration of coordination in the muscular system, and correct any incidental disorders which might retard or complicate the desired result. The author believed that any stage or condition of tabes might be improved or benefited by properly directed treatment. The development of the degenerative changes could be arrested completely in nearly every pre-ataxic case, and that much of the lost function could be restored. He believed that these results might also be obtained in a majority of the ataxic cases, and that this majority was reduced somewhat in proportion to the duration and intensity of the ataxia and the abuse of the specific remedies employed. The author's clinical observation, aggregating fourteen cases in his private work, had been uniformly satisfactory. In these fourteen cases, embracing a variety of conditions and degrees of advancement, all had responded to treatment in a most satisfactory manner. In every case the disease had been arrested and continued so to the present time. In nine cases marked improvement in coordination, gait and general health had persisted. In five cases the knee-jerk had been restored to normal; all painful sensory symptoms had disappeared; dribbling of urine had ceased, and little evidence of the diseases remained. In two cases the pupillary reflex to light had returned to normal. In six cases the Rhomberg sign was barely noticeable with both feet close together and the eyes closed. In two cases the patients could stand upon one foot with the eyes closed. The author had demonstrated to his own satisfaction, at least, that the X-ray, when of sufficient penetration to obliterate the shadow of bony structures, would stimulate cell activity in the diseased cord, facilitate the restoration of the lost function in cells not completely destroyed, and relieve the crises and other lightning pains. May not one hope for advancement in the therapy of this disease as well as in tuberculosis, cancer, and many other conditions as witness in the advanced therapeutics of to-day?

Alcoholic Insanity.—Dr. I. A. McSwain, of Paris, offered the following suggestions on this subject: (1) The children of drunken and debauched parents ought, for obvious reasons, to be taken away from them and placed in decent homes, or removed to industrial institutions provided by the State. This would check their hereditary tendencies to drunkenness, and therefore reduce the number being raised up to become a burden to the State in the way of paupers, criminals and lunatics. (2) Young people, who early in life contract the pernicious habit of drinking should also be removed from the temptation of their environments, and placed in institutions in which they should be taught some useful employment, and restrained from vicious habits. (3) The drinking man, as soon as he began his spree, before he was crazed by it, should be taken into custody, not as a mere nuisance, but as a dangerous man, or one likely to become so, because of insanity in the incipient stage. (4) The confirmed drunkard, the chronic alcoholic subject, should on no account be allowed to exercise his personal liberty in the pursuit of delusions which result from prolonged excesses.

The following papers were also read: "Some Recently Collected Statistics on the Increasing Frequency of Abortion; Some Causes for the Same," by Dr. J. L. Andrews, of Memphis; "Keratosis Follicularis," by Dr. G. P. Edwards, of Nashville; "Bone Surgery," by Dr. R. A. Barr, of Nashville; "The Physician as an Advertising Medium," by Dr. F. J. Runyon, of Clarkesville.

Officers.—The following officers were elected: President, Dr. Cooper Holtzclaw, Chattanooga; Vice-Presidents, Dr. S. W. Woodyard, Greeneville; Dr. Alfred Moore, Memphis; Dr. A. F. Richards, Sparta; Secretary, Dr. George H. Price, Nashville; Treasurer, Dr. W. C. Bilbro, Murfreesboro; Delegates to American Medical Association, Dr. W. J. Miller, Johnson City; Alternate, Dr. G. O. Bicknell, Madisonville; Dr. W. D. Haggard, Nashville; Alternate, Dr. Louis Leroy, Nashville.

Memphis was selected as the place for holding the next annual meeting; time, second Tuesday in April, 1906.

BOOK REVIEWS.

Studies in the Psychology of Sex. Sexual Selection in Man. By Havelock Ellis. F. A. Davis Company, Philadelphia.

Havelock Ellis continues his studies in the origin and development of the ruling sense of organic nature. In this volume he discusses the influences of touch, smell, hearing and vision. Touch he shows is the most intimate and vital of the primary sexual characters.

No other English author has contributed so luminously to the great subject as our author, proving at the same time scientific and interesting. The great tendency to pander to the prurient is carefully suppressed, and the present volume, like his previous ones, is eminently sound and satisfactory.

On the subject of the relation of music to sexual attraction, selection, etc., the author is not in his usual judicial mood. Whether he lacks a musical training, and thus is outside of the gamut, is not apparent, but he is strangely misinformed and, we believe, lacks psychological insight regarding the powerful impulse to sexual thought that music is capable of exciting in a large number of people in all strata of society.

Treatise on Diseases of the Skin for the use of advanced students and practitioners. By Henry W. Stelwagon, M.D., Ph.D., Clinical Professor of Dermatology in the Jefferson Medical College and Woman's Medical College, Philadelphia; Dermatologist to the Howard and Philadelphia Hospitals, etc. Third edition with 220 illustrations in the text, and 26 full-page lithographic and half-tone plates. W. B. Saunders & Company, Philadelphia, New York and London.

This treatise was so very well reviewed by us when it first appeared, that we can only repeat our good opinion of its efficiency from the general practitioner's standpoint. In this edition the X-ray and high frequency current are given due notice, and the Finsen light treatment has been enlarged upon. The illustrations are as good as would seem possible in a work of this price.

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ORIGINAL ARTICLES.

THE RECOGNITION AND TREATMENT OF PANCREATIC INFLAMMATION.[1]

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No surgical field has been so much neglected as that of pancreatic diseases, and up to the present only a sporadic interest is shown in it.

This deplorable fact reflects the whole history of the pancreas, which was probably known to Hippocrates, but certainly not understood by our great ancestor, as is evident from his essay Περὶ ἀδένων. Hippocrates assuming that all glands of the body consisted of κρέας (flesh), it is not astonishing that this gland was given the term Πάνκρέας (all flesh). Eudemus, in the fourth century, advanced the theory that the pancreas discharged a saliva-like fluid, which served the purpose of digestion, but Herophilus and Galen denied this assumption, claiming that the pancreas simply served as a kind of support for the stomach and the large blood-vessels. For centuries thenceforward no interest was taken in this gland; but in 1642 Georg Wirsung [not Wirsung], the German demonstrator at the anatomical institute of Padua, in Italy, recognized the duct of the pancreas which still bears his name. More than a hundred years later Santorini detected the second duct.

The discovery of the ferments of the pancreatic gland by Claude Bernard in 1855 revived the scientific interest in this important organ, and the conjoined investigations of physiologists like Schiff, Bidder, Pawlow, Heidenhain, of pathologists like Cruveilhier, Rokitansky, Virchow, Recklinghausen, Klebs, Orth, Ziegler, Langerhans and Dieckhoff, and of clinicians like Friedreich, Frerichs, von Mering and Minkowski gave us an insight in its functions and their disturbances. Especially the discovery of the latter authors, that diabetes followed the extirpation of the pancreas in lower animals (1889), and furthermore the brilliant development of abdominal surgery, led to a better understanding of the physiological, anatomical and clinical features of the organ. The classical contributions of Gussenbauer, who was the first to operate on the pancreas, of Körte, Oser, Hahn, Senn, Robson, Moynihan, Flexner, Halsted, Mayo and Woolsey have also helped to establish the physiology as well as the surgery of the organ upon a new basis.

To appreciate the diseases of the pancreas the anatomy as well as the topography must be thoroughly known. In order to recapitulate the important anatomical points it should be remembered that the pancreas is an elongated gland, situated behind the stomach on a level with the twelfth dorsal or the first lumbar vertebra, where it crosses the aortic foramen of the diaphragm. Its length is five to seven inches, and its weight about two to two and one-half ounces.

The organ is divided into the head, the body and the tail. The hammer-shaped head is situated in the concavity of the duodenal loop on the right of the spinal column, and is deeper located than the other parts of the gland. At its posterior surface the ductus choledochus communis passes down in a groove—sometimes in a canal. Anteriorly it comes into contact with the flexura coli hepatica, and posteriorly is strikes the vena cava ascendens.

The body is separated from the left crus of the diaphragm by the left suprarenal capsule and from the right by the vena cava ascendens. The posterior surface rests on the aorta descendens and the lymph-vessels accompanying it, and the inferior surface rests on the duodenojejunal flexure. It is furthermore situated between the branching off of the truncus coeliacus and the arteria mesentica superior. From the arteria coeliaca the splenic, hepatic, and gastroduodenal arteries, and the ramus pancreatico-duodenalis superior branch off, while the superior mesenteric artery sends off the arteria pancreatico-duodenalis inferior. All these arteries send branches to the adjacent organs.

Below the body is found the solar plexus and the lymph-vessels arising from the cisterna chyli. The tail is connected with the hilum of the spleen by the pancreatico-splenic ligament. Posteriorly it is bounded by the left kidney and anteriorly by the flexura coli lienalis. The insertion of the transverse mesocolon is found below the inferior pancreatic margin.

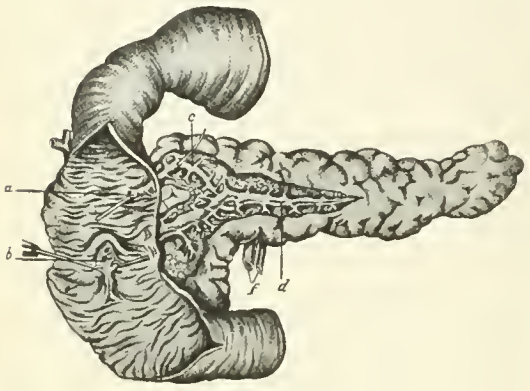
Some also distinguish a neck of the pancreas indicated by a slight inversion at the left of the head.

As mentioned above, the pancreas possesses a large and a small duct, both of which open separately into the duodenum. The large duct, called the Wirsüngian, passes straight from the tail to the head, where it alters its direction by turning downward and backward, uniting with the ductus choledochus communis, and thus forming the ampulla of Vater. An inch above the Santorinian duct opens into the duodenum after it continues forward where the Wirsüngian canal makes its turn. The wall of the Wirsüngian canal is thin and smooth; its larger diameter amounts to three millimeters. Its structure is like that of the paro-

[1] Paper read before the Annual Meeting of The American Therapeutic Society, Philadelphia, May 5, 1905.

tid gland, but its texture is looser and softer. Areolar tissue, dipping down in its interstices, so that it is divided into lobes, surrounds it. These lobes are again divided into lobules, forming a constellation of alveoli, which connect with the branches of the duct. Columnnar epithelium lines the minute ducts, while the alveoli are tubular and lined with columnar cells.

Fig. 1.



Pancreatic Ducts.

a Ostium duct. Santorini; *b* Papilla Vateri; *c* Duct, Santorini; *d* Duct, Wirsüngianus; *f* Sup. mesenteric vessels.

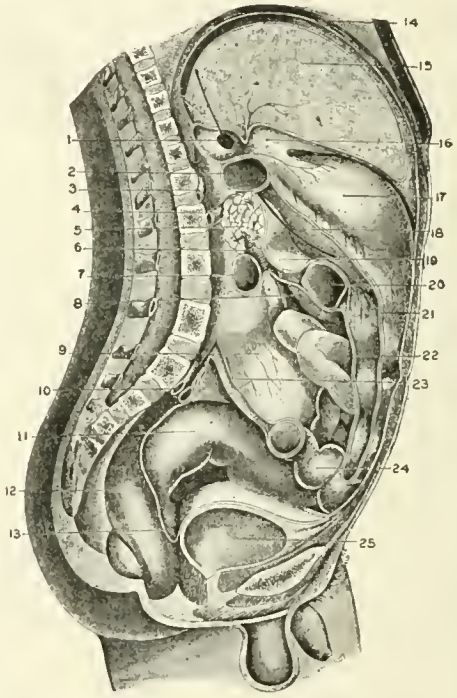
The distribution of the branches can be well studied now by the Roentgen rays (injection method). The intraalveolar tissues are filled with groups of small polygonal cells, with a round nucleus and a refractive cell body, known as the "islands of Langerhans."

The secretion of the pancreas is clear and slightly viscid. The taste is salty. Its specific gravity is 1,030 and the reaction alkaline. It contains three ferments, viz.: It emulsifies fats and splits them into fatty acids and glycerin; it changes the albuminates into peptones and influences the carbohydrates like the secretion of the salivary glands; it changes starch into dextrin, maltose and grape-sugar.

Our knowledge of the symptomatology of pancreatic diseases is still in the infantile stage. Great difficulties in an exact diagnosis are offered by the deep situation of the gland and its intimate contact with the neighboring organs, viz., the stomach, duodenum, liver and biliary tracts. Thus it is sometimes impossible to learn whether the pancreas itself or one of the neighboring organs is primarily affected. Physiology, however, frequently comes to our rescue. The specific physiological functions of the organ, described above, are disturbed as soon as the pancreas becomes diseased. Thus we may be able to make a diagnosis from the cessation of the functions, viz., the non-division of fat into fatty acids and glycerin (fat-diarrhea) and the discontinuation of the regulation of the sugar-consumption (diabetes). If, while biliary disturbances are absent, much fat is present in the feces, pancreatic disease may be suspected. The presence of sugar in the urine corroborates the diagnosis, if there are other symptoms pointing to pancreatic disease. The absence of sugar alone proves nothing against it.

The other signs of pancreatic disease are not reliable. Of course, pain is a valuable symptom, and if present in the pancreatic region may point to acute and chronic inflammation as well as to neoplasm, cyst and lithiasis. But sometimes the pain is found in the epigastrium and at other times towards the back only. Sometimes there are colicky attacks, followed by more or less grave collapse, such conditions often being mistaken for "cramps of the stomach" or colicky attacks of the biliary or intestinal sphere. Thus the character of the pain in these disorders is not so specific that it could be utilized for diagnostic purposes. Only after excluding the disorders mentioned can we regard the pain in this region as emanating from a pancreatic affection.

Fig. 2.



Topographic Relations of the Abdominal Organs to the Pancreas.

1. Foramen Winslowi.
2. Pars. horiz. duod.
3. A. renalis dex.
4. V. renalis dex.
6. A Mesent. sup.
7. Pars. adsc. duod.
8. Post. mem. of transv. mesocolon.
9. Right mem. of mesentery.
10. V. iliac comm. dex.
11. Flexura sigm.
12. Rectum.
13. Douglas' pouch.
14. Diaphragm.
15. Liver.
16. Oment. minus.
17. Interior surface of stomach.
18. Bursa omentalis.
19. Interior mem. of transv. mesocolon.
20. Colon transv.
21. Descending mem. of maj. omentum.
22. Ascending mem. of maj. omentum.
23. Both mem. of mesentery.
24. Small intestine.
25. Bladder.

The same may be said of the cachexia following pancreatic disease, since this important symptom is also found in the various affections of the stomach and the duodenum, as well as with neoplasms of liver and gall-bladder. That the stomach and intestines are more or less disturbed in pancreatic disease hardly needs to be emphasized.

But they resemble the various diseases peculiar to these organs so much that differentiation cannot be established on that basis. A more reliable distinction can be made if jaundice is present, since this symptom is nearly always observed in disease of the pancreatic head, provided it is of an inflammatory character or caused by abscess, neoplasm or fibrous degeneration. This is most natural because the common duct becomes compressed. In such cases the gall-bladder will be extremely enlarged without being tender, while the duct is obstructed by the presence of biliary calculi and becomes small and tender on touch. In other words, in chronic jaundice, complicated with considerable enlargement of the gall-bladder and not showing colicky attacks in the biliary sphere, a diseased pancreatic head should be suspected. A pancreatic calculus can be readily detected by the Roentgen method, but it is difficult to differentiate it from a biliary or renal concretion.

Palpation can be relied upon in thin individuals when the organ is enlarged by inflammatory processes or abscess-formation. In such cases it generally overlaps the small curvature of the stomach. The examination is best done while the patient is anesthetized and after the stomach and bowels have been well evacuated. But if the conditions are not very favorable, the intumescence may be taken for a tumor at the posterior surface of the stomach or in the omental bursa or the glands of omentum or mesentery. Cysts of the mesocolon or even inflamed retroperitoneal glands may be also mistaken for a diseased pancreas. By the artificial dilatation of the stomach by air or water, the organs to which the intumescence belongs can, at times, be defined. Percussion is of value only when the tumor is very large. As general causes of chronic pancreatitis syphilis, mercurial poisoning, arteriosclerosis and injuries are to be considered.

In summing up it becomes evident that there is not one sign which is absolutely pathognomonic for pancreatitis. Only by carefully considering the history, the mode of the onset and the various combinations of the different symptoms, a diagnosis can be made in a number of cases.

We distinguish three forms of pancreatitis, viz., the acute, subacute and chronic form. The classification of Fitz, who has done so much in elucidating the pathology of the pancreas, in hemorrhagic, suppurative and gangrenous pancreatitis is tempting, but not opportune, for the reason that one of these forms passes into another. In other words, it would rather indicate a variation degree or stage than a difference in kind.

The predominant symptoms of acute pancreatitis are: Sudden pain in a previously healthy individual at the upper region of the abdomen, followed by collapse and vomiting. Constipation is always present. Soon after the first symptoms the abdomen becomes distended. The urine contains sugar and sometimes albumen. Slight jaundice is frequently observed. If the patient survives the first stage, his face assumes the Hippocratic expression. The temperature is of the irregular septic character, that is now subnormal, then excessively high, while the pulse rate is extremely high, with poor quality. The tenderness and rigidity of the recti muscles makes it difficult to palpate the pancreatic intumescence without the aid of anesthesia.

In differentiating the possibility of intestinal obstruction, perforative appendicitis, perforative duodenal or gastric ulcer, ulcerative or suppurative cholecystitis and inflammation of the bile ducts must be eliminated.

The preference of acute pancreatitis is for healthy men of thirty to forty years.

It is reported by Osler and Manges that cures were effected in patients whose inflamed pancreatic glands were exposed by laparotomy and left untouched. We might safely say that in the great majority of cases the course is grave from the beginning. Those patients who survive the severe shock in such cases still succumb to necrosis of the gland or to abscess-formation, provided no effort is made to drain off the hemorrhagic effusions generally found in abundance at this stage. If it is realized that in acute pancreatitis a high degree of hyperemia is always present, which leads to hemorrhage in the tissues, the importance of early discharge of these fluids, so favorable for bacterial development, is self-evident.

In these cases, in which the process virtually starts as a hemorrhage (pancreatic apoplexy), the inflammation being the consequence of the bloody infiltration of the tissues, early surgical interference is so much more promising.

In all cases of acute pancreatitis the autopsy *in vivo* as well as *in mortuo* revealed the fat necrosis either in the gland itself or in some of the adjoining tissues. Whether this unfortunate phenomenon is the consequence or the cause of the hemorrhagic inflammation is still *sub judice*.

In the subacute form the symptoms are virtually the same but of a milder degree, the collapse especially being less sudden and less severe and sometimes entirely absent. The superior abdominal region swells less rapidly, and the nausea is less marked. The meteorism being less extensive, palpation gives better chances, so that the swollen pancreas may be well defined. The constipation is followed by diarrheic stools of a fetid odor, containing pus or blood. The pulse is not as excessively high as in the acute form and varies between 80 and 110. The morning temperature is sometimes normal, whereas in the evening the thermometer registers from 103° to 105° F. The pain localizes itself in the epigastrium. The grave symptoms may gradually disappear, while the increasing cachexia and the presence of albuminuria tell of the continuous pathological changes. Then an abscess often forms, in which case a tumor develops, projecting into the upper region of the abdomen. Sometimes it burrows into the loin or below the dia-

phragm, where it establishes itself as a subphrenic abscess. It is in just such cases that surgery promises good results. Especially, if gangrenous portions of the pancreas become imbedded in circumscribed foci, peritoneal adhesions enveloping them, free exposure and draining may be directly life-saving.

In chronic pancreatitis the inflammatory process generally starts in the ducts, bacteria invading them from the duodenum or the common duct (ascending inflammation). Sometimes the inflammation is caused by constitutional disturbances like syphilis or abuse of alcohol (hematogenous inflammation). Inflammatory induration of the pancreas is also produced by the partial or complete obstruction of the ducts by concretions, or cicatricial stricture or by tumors. Other important etiological factors are injuries of the abdomen, directed against the pancreas.

Autopsies, made in cases of syphilis, arteriosclerosis, alcoholism, interstitial hepatitis, and also in cases of diabetes, reveal a more or less extensive fibrous degeneration in the pancreas. In syphilis the signs of periarteritis are found, the adventitia being infiltrated with lymphoid cells and the capillary network disappearing around the acini.

The symptoms of chronic pancreatitis are: Gradual and painless onset, gastric disturbances, constipation or diarrhea and pain in the epigastrium, jaundice and cachexia. Albuminuria is always present and glycosuria seldom absent. The temperature is generally normal in the morning and rises to 101° to 102° F. in the evening. The pulse is usually normal, and if jaundice be present, abnormally low. At a late stage the blood-degeneration finds its expression in hemorrhages from nose and intestine. Blood may be vomited and the integument shows petechiæ. The presence of all these signs, however, does not make the diagnosis *a priori*, since they may all be observed in other chronic diseases of the gastro-intestinal tract or in cholelithiasis, carcinoma of the liver or cholecystitis.

Sometimes the thickened pancreas can be palpated. But then carcinoma will be thought of first, the contradiction, however, being furnished by the continuous or temporary decrease of the tumor in favorable cases.

The course of chronic pancreatitis is slow. In the majority of cases fibrous degeneration may gradually destroy the functions of the organ. Sometimes there are secondary changes in the adjoining tissues, like compression of the duodenum and the common duct or thrombosis of the portal vein. Such secondary conditions are especially accessible to surgical interference.

No doubt many cases of pancreatitis, not only of the chronic, but also of the acute type, could be saved by surgical interference.. Why, up to the present, this has been done only to a limited extent explains itself fully by the great difficulty of diagnosis, which makes the surgeon hesitate to risk an operation in a region, the accessibility of which is, as described above, impaired by its topographic peculiarities. He will also fear the vascularity of the organ which makes hemostasis extremely difficult. Clinical experience further shows that interference with the pancreatic parenchyma not only inhibits nutrition of the area involved, but also irritates the adjoining organs, a condition which is frequently followed by fat-necrosis. Another aggravating circumstance is the fact that the patient is generally in a state of greater or less collapse.

If, however, it is realized that acute pancreatitis is virtually an infectious process not unlike acute appendicitis, the difference being that the virulence in the inflamed pancreas is still greater, its ferments being an additional factor for the greater intensity of the toxic nature of the affection, we understand that only under extraordinary circumstances medical, or expectant treatment, rather, is successful. It is natural, therefore, that surgery has tried to approach the focus of infection with a view of discharging and draining off the infectious virulent exudates at an early stage, instead of waiting until the process concentrates itself, so to say, into an abscess. Of course, if the patient survives the acute stage, it would be most desirable to operate on a well-defined circumscribed abscess-focus, and, in fact, if we could hold the patient over till this stage is reached, such treatment would be the one *par excellence*. But how many do survive? As long as the clinical experience is so sad in this respect it seems to me that, in spite of all the difficulties presented, the surgeon should, instead of hoping for improbable developments, not hesitate to do what he used to do in all other infectious processes which his scalpel has a chance to reach.

In fact, Nimier, Robson, Lund, and especially von Mikulicz, are strongly in favor of early operation for acute pancreatitis, Nimier incising the pancreas and packing it, whereas Robson is for an incision below the umbilicus and counter-incision below the rib arch. Lund and von Mikulicz divide the gastro-hepatic ligament and drain the omental bursa extensively, and eventually expose the diaphragm after rib resection.

Referring again to the uncertainty of the symptoms, which may just as well be pathognomic for other abdominal disturbances, one factor deserves the greatest attention, viz., that these other disturbances demand laparotomy likewise. Practically, therefore, the surgeon need not fear that after having opened the abdomen he will be embarrassed by the presentation of pathological conditions which may not require surgical interference. In practice the surgeon will consequently open the abdomen whenever there are symptoms of the nature described, which would point to the possibility of the presence of pancreatic inflammation. If the intra abdominal inspection reveals the presence of fat-necrosis, pancreatic inflammation and exudation should be assumed, and if palpation verifies it the exudate must be discharged and the area drained.

The *modus operandi*, which is virtually identical with that in cholecystotomy, would therefore be the following: An incision is made alongside the outer margin of the rectus muscle. If a tumor was felt in the median line, the incision may reach from the xiphoid process to the umbilicus. If the rib arch proves to be in the way, Marwedel's method of resecting the costal arch may be advisable. The further procedures must bear an exploratory character.

At first the ducts are inspected and palpated, in order to ascertain whether there be a calculus in the Wirsüngian or the common duct, or in the papilla Vateri. In this event, extraction of the calculus must be followed by duct-drainage. If such steps are contemplated, large gauze pads must be ready to mop up the secretions as they escape. If there is a pancreatic exudation it must be discharged. During these manipulations the abdomen is frequently irrigated with hot sterile water. I regard the use of these simple means as very important in intra-abdominal operations, because, in the first place, they stop surface-hemorrhage, permitting the surgeon to see more clearly. At the same time they remove exudations and blood-clots in an easy, mechanical manner and eliminate, therefore, a favorable soil for bacterial development. The repeated hot-water irrigations, to a certain extent, also possess bactericidal properties. It is true they cannot kill bacteria directly, because they are not hot enough, but they affect bacteria in such a manner that their resistance is lowered. After the field is thoroughly cleaned, packing with three per cent. iodoform gauze is done. If the patient is in grave collapse, ether should not be given, and local anesthesia administered instead.

In the subacute, or chronic form the patient can always be given the benefit of a full general anesthesia.

If the pancreatitis is caused by pressure from cholelithiasis or cholecystitis, or both, it will often be relieved indirectly by cholecystotomy. The compression ceasing then, the hyperemic condition of the pancreas naturally disappears. If the pancreatitis be caused by retrograde infection from the gall-bladder or the common duct, the pancreatitis may also subside after cholecystotomy. If not, the pancreatic duct must also be drained.

My own experience with acute pancreatitis has not been very encouraging. Among three cases I have lost two. In none of them could an accurate diagnosis be made before the abdomen was opened. In one of the fatal cases the pancreatic focus was of a pyemic nature and developed after puerperal infection. The second developed on the basis of chronic cholecystitis, which caused infection of the pancreas. The third case was due to a severe injury sustained by a woman of thirty years, who was thrown against the projection of a strong table while wearing a heavy corset, the latter apparently having aggravated the violence. Although the patient was in considerable collapse, the hemorrhagic exudation could be well drained off, and recovery was speedy.

In a fourth case the diagnosis cholelithiasis was made by an excellent diagnostician, who requested me to open the gall-bladder. He apparently had good reasons for his assumption, because the patient, a woman of fifty-five years, had numerous colicky attacks in the region of the gall-bladder and was jaundiced repeatedly in the course of the last seven years. Lately the general condition became impaired, the loss of flesh also being marked. The urine contained no albumen, but traces of sugar. The epigastrium, as well as the region of the gall-bladder, was tender and the liver slightly enlarged. After the abdomen was opened at the outer margin of the right rectus muscle, a small, fibrous gall-bladder was found of the shape which I described in the *Deutsche Medicinalzeitung*, May 7, 1898, as "Hour-Glass Gall-bladder." It contained no liquid whatever. But there were a number of adhesions between gall-bladder, liver, omentum, duodenum and colon, covering a hard, nodular mass, which was recognized as the head of the pancreas. After dissecting the adhesions and isolating the pancreatic head as much as possible, I closed the abdomen without interfering with the gall-bladder at all. The patient made an uninterrupted recovery and has had no colicky attacks since. It seems to me that the patient suffered from cholelithiasis for a number of years, small calculi having probably been present, which, while causing cholecystitis and circumscribed peritonitis, were expelled during the numerous and violent paroxysms, leaving a much degenerated gall-bladder. In the meanwhile the peritonitic irritations had produced the adhesions which extended to the pancreatic head and obstructed the duct more or less, thereby causing retention of the pancreatic secretions.

I reserve to myself the privilege of describing these cases more fully in a future communication. All in all, I have no doubt that pancreatitis is of much more frequent occurrence than is generally assumed, and if the conjoined efforts of the family physician and the surgeon will be in the direction of more frequently suspecting pancreatitis in apparenty obscure abdominal ailments, our statistics will soon present an altogether different appearance.

Treatment of Pertussis.—In the treatment of whooping-cough, R. Rahner (*Munch. med. Woch.*, June 20, 1905) speaks well of the action of antitussin, an ointment consisting of difluordiphenyl and fats, which is applied locally to the neck and chest. After five days the intensity and the frequency of the attacks will be much diminished. Besides being an antispasmodic, the drug is also an excellent expectorant, and more serious complications, such as bronchopneumonia, are most certainly avoided. Since it is absolutely harmless, it may be used for nurslings. Bad results were never seen, and failures occurred only in the case of infants suffering from rachitis or broncho-pneumonia.

THE CARE OF THE INFANT.[1]

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I HOPE you do not expect me to set before you this afternoon a mental feast of original ideas about the care of infants, nor to give you an exhaustive list of all that has been written upon this subject in Germany, Morocco, England and Siberia since the infancy of Cain and Abel down through the ages to the present time. For those who desire such a bibliography I refer you to the Library of the Medical Society of the County of Kings.

I fear indeed that little that I shall present to you in the forthcoming paper will be original, for the early care of infant is a subject that has received attention since the birthday of mankind. All that any one individual can do in this line is to accept at the outset the teachings of some one who has trodden the path before him, and then from time to time record the results of his own personal observation and experience. In my own case I had the singular good fortune to have as "mentor, guide and friend" a man whose exceptional mental gifts had been cultivated by the benefits of collegiate training and the medical course of the New York College of Physicians and Surgeons. His Alma Mater then sent him abroad for two years' work in the best maternity hospitals of the world, and upon his return installed him as the resident obstetrician in an institution, then in its infancy, but now a child of lusty growth, the Sloane Maternity Hospital. In the ideal environment of the Sloane, Dr. Ervin Alden Tucker lived for five years, seeing thousands of cases, regulating every minute detail in the management of mother and child, and teaching those fortunate internes who, like myself, came under his authority with that accurate knowledge, lucidity of statement, practical application of many theories, and innate enthusiasm that later during the few brief years of private practice quickly caused him to be recognized as one of the leading obstetricians in this or any other country. I was indeed fortunate to have had the benefit of this man's influence and instruction. So far as possible I still follow the directions he laid down. These directions I propose to embody in the present paper, together with such results of personal experience as time has brought me.

As a foreword let me interpolate the answer that I have formulated to the oft-repeated question of the expectant mother to the physician engaged to attend her at her approaching confinement. "What articles shall I have in readiness for the proper care of myself and of the baby?"

This question would doubtless be answered differently by every physician who has been in practice for five years. To try and secure a composite photograph of the views of different individuals I proposed this question to my class of students at the Long Island College Hospital, with the request that a written list be handed me by each student, made out after a conference, not with the text-book alone, but also with his medical preceptor. Sixty lists were handed me, containing, as a rule, a well-considered list of articles. These lists were then tabulated, duplicates were eliminated, and the resulting list was discussed with the supervisors of nurses of six of the leading hospitals in the city and with a large number of trained nurses. The idea was to secure a list of articles that should be within the reach of all save the very poor, and not to include non-essentials. The net result is as follows:

ARTICLES TO BE IN READINESS FOR AN APPROACHING CONFINEMENT.

For Use of the Mother.

Towels, freshly laundered	6
Sheets, freshly laundered	3
Rubber Sheet	1
Labor pad, made of newspapers and clean muslin or "Quilted Mattress Protector"	1
Lochial guards, preferably of gauze and paper wool, or of cotton waste, or of cotton gauze, sterilized	36
Binder, abdominal, 18 inches wide and circumference of hips	3
Binder, breast, made from pattern	2
Safety pins, "Clinton," Large No. 3	24
" " " Medium No. 2	48
" " " Small No. 1	36
Wash bowls, earthen or agate	2
Water pitcher, earthen or agate	1
Slop jar	1
Absorbent gauze for wash cloths, etc. (yards)	10
Fountain syringe, one gallon	1
Glass douche tip, for syringe	1
Glass drinking tube	1
Douche pan, white enamel or agate ware	1
Hand brushes	2
Antiseptic tablets, 7½ grains, bichloride, blue	100
Lysol, fluid ounces	8
Vaseline in a tube	1
Chloroform, Squibbs, fluid ounces	4

For Use of the Baby.[1]

Flannel bands, 6 inches wide, 30 inches long	4
Diapers	24
Woolen blanket, soft, old, and about a yard square	1
Flannel petticoats	3
Slips	4
Knitted flannel shirts	2
Bath tub, white, at least two feet long on bottom	1
Bath thermometer	1
Bath aprons, flannel and rubber	1
Hot water bag	1
Absorbent cotton (pounds)	1

1 At time of labor room should be cleared of all needless articles and ornaments. Protect carpet with layer of newspapers with sheet tacked over them. Clear bureau, mantel and table tops, protect with papers and cover with clean towels ready for instruments, etc. Have plenty of hot and cold water and ice in readiness. Have these supplies at hand, in good order, and easily accessible.

1 Read before the Associated Physicians of Long Island, Manhattan State Hospital, Central Islip, L. I.

Olive oil (sweet oil), fluid ounces	4
Castile soap	1
Baby basket to hold dressing materials, etc.	1
Baby powder (lycopodium, 3; zinc stearate, 2; Boric acid, 1;) ounces	4
Powder for cord (salicylic acid, 1; zinc oxide, 1;), ounces	1
Boric acid (pounds)	1
Salt shaker for boric acid	1
"Lightning" jar, ½ pint, for boric acid solution	1
Scissors, pin cushion, needles and thread.	

This list is printed upon the Standard Library Bureau card (6 in. x 6 in.) for medical work. On the front of the card a space is left for the name, address and telephone number of physician, patient and nurse. On the back page, after it has been folded vertically, is the special direction:

"Urine: Send half a pint of morning urine to doctor's office every two weeks after the sixth month."

This card I have now used for three years, and have heard many comments on it from the householder's point of view. I have found it, if not ideal, certainly of material use to both physician, nurse and patient. I trust the discussion here will render the list still more valuable by proposed amendments.

Let me now present for your consideration a brief personal statement of my mode of procedure in the conditions that may arise in the care of infants during the first month of life, and which primarily come under the rule of the obstetrician. Only the more common ailments will be considered; the rarer forms of infantile anomalies and pathology will be eliminated more or less completely.

Obstetric Accidents which may happen to children during or soon after birth.

In anticipation of the possible occurrence of such accidents certain preparations should always be made as soon as labor is fairly begun. A bath-tub, partially filled with hot water should always be in readiness and an abundant supply of hot water should be continuously provided. Upon a sterile towel on a table near the bedside should be arranged two pairs of artery forceps, scissors and tape for the cord, a curved needle threaded with a yard of heavy silk, tongue forceps or a small double tenaculum for seizing the baby's tongue if necessary, a plate upon which are spread a dozen thin pledgets of absorbent cotton dampened with boric acid solution, to use for the child's mouth and eyes, a gauze compress for insufflation, and a bottle of 2 per cent. nitrate of silver solution with a dropping tube for the instillation of the eyes. All the supplies appertain to the child, any one of which may be needed at an instant's notice. Have them ready beforehand.

Cleansing of the Mouth as soon as the head is born may be regarded as the first step in the actual medical care of the infant, for with the establishment of pulmonary respiration the separate existence of the new-born actually begins. The mouth should be cleansed as soon as it emerges over the perineum. The small, thin borated flakes of dampened cotton are to be used, wrapped around the tip of the little finger, and the mouth thoroughly wiped out. Proper attention to this detail may prevent asphyxia or a later foreign-body pneumonia from inhalation of blood or meconium. Several such pledgets of cotton are required and the child not infrequently makes efforts to breathe while this is being done.

Cord around the Neck. Most of our books and teachers lay great stress upon the importance of removing the cord from around the neck as soon as the child's head is born. Formerly I believed in and practised this myself, but I must say that, with greater experience, I have come to attach less and less importance to this procedure. When the child's head is born it is best to remove the cord at once if it can be quickly and easily done, as when the cord is long and loosely encircles the neck. If the least difficulty be experienced in removing the cord it is best to pay no further attention to it but proceed at once to the completion of the delivery. Less time is thus lost and time at this stage of labor is of vital importance. Recall for a moment the conditions as they exist when the cord is around the neck and you will readily see why it is not so important to remove it. If the cord be around the neck it may be assumed that all circulation through it has ceased because of the severe pressure to which it has been subjected by being between the neck and the pubic arch; the head is already born so that there is no need of reestablishing the circulation of blood and oxygen through the cord. All that is necessary is to finish the delivery so that the child is free to expand its lungs. Children are occasionally lost through the delay caused by repeated attempts to remove the cord; had but one attempt been made and, that failing, the child promptly extracted many such cases could have been revived from the asphyxia. Occasionally it is easy to slip the cord over the shoulders and allow the child to be born through the loop thus formed. There is no objection to this procedure, provided no time is lost. If the child be completely delivered with the cord still around the neck the criticism may be made that there will be undue traction upon the placenta. While traction upon the cord is usually productive of no ill results as the cord will tear loose from the placenta if strongly drawn upon, there is a certain element of risk in the premature separation of the placenta by this traction. A severe concealed hemorrhage may then result: the child's head may cork up the birth canal so effectively that the internal hemorrhage may be quite unsuspected until birth is completed, and then, to the surprise and dismay of the accoucheur a uterus filled with blood may discharge its contents immediately after the child has been removed. To prevent this possible danger it is better to have two artery

clamps always at hand. When the non-removable cord is encountered, clamp it firmly in two places, cut between and deliver the child without delay.

Asphyxia.—In case a child is born asphyxiated three things are necessary, viz.: Clear the air passages from mucus, stimulate the child with heat, perform artificial respiration. If the asphyxia be deep all three of these procedures are of the utmost importance; to omit one of them may result in failure. The best method to clear the air passages of mucus is to wipe out the child's mouth and then clear out the mouth and nose by mouth to mouth insufflation through the medium of a layer of towel or surgical gauze. The very act of forcing air through the upper air passages is of itself a valuable aid to establishing respiration. During this procedure care must be taken to press with the thumb firmly upon the baby's stomach, otherwise the child may soon resemble a balloon by reason of the distension of stomach and intestines by the air forced through the esophagus.

The stimulus of heat is most easily applied by placing the child at once in a hot bath, "Have plenty of hot and cold water and ice in readiness;" this clause in the directions to the nurse should always be emphasized beforehand. The baby's bath tub should be partially filled with hot water shortly before birth, and be placed close at hand with a tea-kettle of boiling water to add heat at once when it is needed. If the application of heat to the child should be urgent, the cord can be clamped and cut, and the child placed at once in the tub. Occasionally the application of cold may be advisable and can be applied by rubbing the back or the chest of the child with a piece of ice momentarily. This will often cause the child to gasp when persistent heat has failed, although this alternation of heat and cold is not of so much imporance as the hot bath alone.

The advantages and disadvantages of the various forms of artificial respiration—Sylvester, Byrd, Schultze and others—are familiar. The method which I have personally devised and practice in all such cases is as follows: Hold the head of the child between the thumb and index finger of the right hand placed on each side of the neck, with the baby's head to the right and lying upon the back. The baby's right or further arm is then grasped well in the axilla between the index and the middle finger of the same hand; the ring and little fingers are to be extended as far down the spine as possible to give the back support. The left hand holds the legs of the child, from beneath, by grasping the thighs, and with the index finger between the thighs for better security and control. With the child held in this manner it is at once immersed in the tub of hot water, which should be of as high a temperature as can well be borne, and held so that merely the face is out of the water. Expulsion of the air from the chest is then easily effected by flexing the thighs well over on the abdomen with the left hand, making firm counter pressure upon the back with the right hand to prevent the nostrils from being depressed below the surface of the water. Inspiration is next secured by overextension of the legs, and of the neck, supporting the back with the fingers of the right hand as above described. The usual rhythm is of course maintained. While this method is not described in text-books it is to my mind easier and more effective that any of the other methods and combines at once the advantages of heat with artificial respiration. Indeed, in case of necessity mouth to mouth insufflation can also be done with the child still in the bath.

Rhythmic traction upon the tongue has recently been advocated and seems at least to give us another help in the resuscitation of these deeply asphyxiated infants. It can be applied by means of a small pair of tongue forceps which usually either crush the delicate tongue or slip off just when they are most needed; or by means of a double tenaculum which is rather awkward to manage when both hands are employed with artificial respiration. More certain and satisfactory is to pierce the tongue in the median line at the posterior angle of the raphe and pass a needle with a double strand of heavy silk. This can be knotted to form a long loop and in case of necessity can be held in the operator's teeth and used in connection with the artificial respiration already described. The presence of a competent assistant adds materially to the joys of this procedure. If the child cannot be made to breathe after the passages are cleared of mucus and with the use of artificial respiration while it is in the hot bath it is doubtful whether it is possible to revive it at all.

Atelectasis Pulmonum.—When this is complete or nearly so it is usually fatal in spite of all treatment; when it is partial much can be done to aid the child in its efforts to expand the lungs. For several hours, and sometimes for several days, the most careful watch must be kept of the child so that it cannot suffocate from the filling up of air passages with mucus which, in such cases, is always secreted in large quantities. Keeping the air-passages clear of mucus, using a rubber suction bulb or small, soft rubber ear syringe, with or without a catheter attached to it is of primary importance, but the application of heat and the proper nourishment of the child are also to be emphasized. These three are to be persisted in until all traces of obstructed respiration and circulation have disappeared. Many a child has been lost by omitting the heat or forgetting to supply proper food to maintain its strength. These children are usually much too feeble to nurse and have little or no hunger to force them to do so, as the atelectasis usually exists only during the first hours, or at the most two or three days after birth. They will, however, usually nurse readily from the bottle.

This condition must not be confounded with

broncho or catarrhal pneumonia which has often been mistaken for atelectasis. This mistake is especially easy during the first few days. This form of pneumonia is usually due to the inhalation at the time of birth of some foreign substance such as mucus, meconium, liquor amnii or milk; it is rarely due to exposure to cold. In atelectasis there is no fever and the condition exists from the time of birth, gradually growing worse in the fatal case but still without any elevation of temperature. Cyanosis is a more or less prominent symptom according to the completeness of the atelectasis and exists from the first, gradually growing less in case the lungs expand. In pneumonia the symptoms do not as a rule develop until two or three days after birth and the temperature soon becomes high. Cyanosis comes on as a later symptom and increases as the lungs fail more and more to perform their function.

Cephalhematoma.—If this be small do nothing but let the child lie upon the side opposite the tumor. If the hematoma be double or if it be very large, or if you are not sure of the care that will be taken of the child, it is safest to apply to the head a large bonnet stuffed with cotton, leaving only the face visible. Be sure that the bonnet is well padded so as to afford protection to the tumor. Thick layers of cotton held in place by the so-called "nun's cap" head bandage is a very satisfactory method of holding such a dressing in place. When the tumor is double of course the child will rest more easily upon the back, but with a well-stuffed bonnet on, it can lie with comfort and safety upon either side. The absorption of the blood is, as a rule, much more rapid than most of our books tell us. Three or four weeks will often suffice for the absorption of a very large hematoma, and I doubt if many last longer than a month. Most textbooks, on the other hand, give two to four months as the minimum time for their disappearance. A favorable prognosis can, as a rule, be safely given, and is a great comfort to anxious parents. This form of tumor and that of pseudocyesis are especially amenable to Christian science treatment. The absent treatment is especially good in such cases and results in complete recovery. In more severe cases the outcome is more doubtful. Success has been secured in some cases by a radiograph for accurate diagnosis and then a plastic surgical operation.

Hematoma of the Sternocleidomastoid Muscle is a rare condition, but is mentioned to call attention to the diagnosis. It is often confounded with wryneck. In most cases nature effects a cure unaided. Dr. Tucker once reported a case of this sort where the diagnosis had varied between tuberculous adenitis, fracture of the clavicle, ruptured ligaments of the neck and aneurism of the caroid; in spite of this array of medical acumen the child lived and fully recovered, for the small hematoma was the sum total of the lesion present. The fact that hematomata of varying size can be formed should serve as a warning not to make too strong traction upon the head or to twist it too violently when it is being born first, and not to pull too hard upon the body in the extraction of the after-coming head in pelvic presentations.

Facial Paralysis in an infant is usually due to pressure of one blade of the forceps upon the side of the face at a point where the facial nerve is compressed. The condition is usually a trivial one but it must be borne in mind that a child with such a condition cannot nurse properly, and therefore needs careful watching. If the babe cannot make proper suction, feed it with a bottle or with a spoon or even by means of gavage in more serious cases. The course of the disease is usually short and recovery in whole or in part is soon secured. The paralysis will, as a rule, entirely disappear before the end of the first month.

Fractures, especially of the arm or of the clavicle are not infrequently met with, usually in breech cases with extension of one or both arms. The injury is to be treated according to accepted surgical principles. The adhesive zinc oxide plaster may prove of especial value in these cases as the parts are small and the usual dressings are difficult to keep in place. This will, of course, necessitate the sponge bath rather than immersion in the tub.

Dislocations are due to similar causes and are treated along similar lines.

Wryneck, while most common after extraction in pelvic presentation, may also be a result of too active interference in the manipulation of the head in the usual vertex positions. When it occurs the muscle is most apt to be at fault, although the spinal accessory nerve may also be involved in the forceps cases due to badly applied instruments. The prognosis is as a rule favorable.

Birth Palsy, too, is especially apt to follow long-continued extension of the arm in pelvic presentations, or badly directed efforts to bring down the imprisoned arm. One or more branches of the brachial plexus are compressed between the clavicle and the first rib and a paralysis of the type described by Duchenne or by Erb results. Here too, the prognosis is fair, though the pressure being of considerable duration, the function of the nerve is not restored as soon as in the facial paralysis above mentioned. Massage and electricity are of value to maintain good nutrition and to allay the anxiety of the parents.

In the more serious forms of surgical injury such as rupture of viscera, surgical skill is usually unavailing.

The *rupture* of an *artery* in the brain or in the meninges in children where much force is required in the extraction is to be borne in mind as a possibility, although the first indication of such an occurrence may be the sudden death of the child some hours after delivery. This was my own experience in the case of a child weigh-

ing 13½ pounds, removed by version in a primipara in case of sudden collapse and surgical shock. The mother recovered, but the child was found dead in its crib by the nurse twelve hours after birth. An autopsy revealed a rupture of the middle meningeal artery.

Hygiene of the Infant.—Immediately after the birth of the child and as soon as respiration has been definitely established, certain duties devolve upon the physician as a matter of habitual routine that may properly be classified under this heading. It is, unfortunately, the custom of some members of our profession to delegate many of these details to the nurse, but it is far better to devote the "physician's hour" to attending personally to these details, and often in this way escape subsequent criticism for some supposed oversight.

Cord and Navel.—Many methods have been devised for the primary treatment of the cord. If at the time of birth it has been hurriedly tied it is better to re-ligate it about an inch from the body, using sterile linen bobbin one-eighth of an inch wide. If the narrower bobbin be used it is apt to cut through the tissues when tightly tied. Unless the cord is unusually large the stripping, the cord of jelly is a needless task.

In the obstetrician's bag there should be carried a roll containing the primary dressing complete. This is composed of about a dozen layers of surgical gauze, two inches square, and cut through to the middle on one side of the square. This is rolled in a flannel band six inches wide and thirty inches long. The roll is wrapped in a couple of layers of gauze and the whole roll sterilized.

Of the many dressings that have been advocated for the cord I personally use one made of equal parts of oxide of zinc and salicylic acid, sterilized and kept in a tight jar. Half of the small squares of gauze are applied from one side and half from the other. A liberal supply of the powder is then applied to the cord, particularly at the base; the cord is enfolded in the gauze to keep the powder in place and the whole dressing held in place by the flannel band which should be sewed, and not pinned, in place. This dressing may be allowed to remain on for a week unless soaked by bowel discharges or urine. When removed the cord will usually be found to have separated. If not, reapply the dressing for a few more days. Until the cord is off and the navel thoroughly healed the baby should not be placed in the tub for bathing, and care should be taken to keep the dressing dry. The navel, after the separation of the cord, is to be dressel with the same powder until it is healed. For granulation cases and those in which a core or stump of the cord remains behind lunar caustic may be used sparingly.

Repress any tendency to umbilical hernia by the use of a disk of sheet lead which can be depressed for a small area over the navel, and which is easily molded to the curve of the abdomen. This is to be kept in place by sewing it between the first and second layers of the belly band.

Eyes.—The instillation of one drop of 2 per cent. solution of nitrate of silver into each eye immediately after birth is still in my judgment the best preventive of septic or gonorrheal ophthalmia. The excess is easily neutralized at the time by a little salt solution. Subsequent washing out of the eyes should be made by a saturated solution of boric acid, used freely. Iced compresses are to be used in case such a purulent conjunctivitis develops, but this is practically never the case if the eyes receive proper care at the time of birth. I know that the advisability of this procedure has been questioned by physicians and even ophthalmologists do not agree at the present time as to the best solution to use. In my own practice I habitually use the Credé solution and have thus far never seen harm come from its use.

Mouth and Nose.—The mouth should next be examined to ascertain the presence or absence of tongue-tie. If this be found incise the edge of the raphe with scissors and then with the finger nail tear it back to the tongue, thus avoiding bleeding. If neglected it may seriously interfere with nursing and later with speech. Later on, before and after each nursing, the mouth should be wiped out with a pledget of cotton soaked in saturated boric acid solution. Sprue will always be avoided if this procedure be faithfully followed. Neglect of it, especially in the summer months, may lead to the establishment of the parasitic stomatitis and ultimate cholera infantum.

Be sure that the nurse knows how to blow the baby's nose. If she does not, show her how, using a few layers of gauze over the mouth and nose as in mouth to mouth insufflation. This will prevent the accumulation of mucus in the nostrils with resulting snuffles and disordered digestion from the mucus that is swallowed.

Hare lip or cleft palate should receive surgical attention as soon as the baby's vitality is sufficient to withstand an anesthetic.

Genitalia.—The genitalia should be carefully inspected to observe any malformations and to ascertain if possible whether the urethra be patent or not. Often the child will urinate soon after birth. If this does not happen it should always be ascertained at the first subsequent visit whether urine has been passed or not. Imperforate urethra will, of course, demand operative interference at once. The deformities of epispadias, hypospadias or extrophy of the bladder may be operated upon later provided the urine escapes freely. In boy babies the prepuce should be habitually retracted at once and the corona well separated from the lining of the prepuce to which it frequently adheres. This should be done whether phimosis exists or not, and if phimosis is pronounced it is better to circumcise the child at an early date. The nurse should

be instructed to retract the foreskin daily at the time of the bath, and to use a little boric acid ointment to prevent irritation. The clitoris in girls should also be freed from adhesions, in a similar manner.

Anus.—Soon after birth, or during birth, especially in breech cases, the escape of meconium indicates that the anus is patent. If this is not observed inspect the parts carefully, and be sure within the first twenty-four hours that meconium is passing in a normal manner. Imperforate anus demands prompt surgical interference.

Breasts.—During the first few weeks of life the mammary function in boys as well as girls is apt to be too free. If the breasts become swollen and tender, as they sometimes do, do not allow the mother or nurse to express the secretion, as they are prone to do, to "get the worm out of the breast" as some of the old midwives will tell you. Instead of this apply boric acid ointment, a pad of gauze and a snug breast binder and then let the breast alone.

Next should come a careful *inspection* of the child as a whole. Notice should especially be made of any birth marks, for these will surely be noticed by the family later and criticism made if they are not reported. It is one of the first inquiries of the mother in many cases. See if the baby has the proper number of fingers and toes. Congenital hernias should be searched for and a note made of them. Gross deformities such as spina bifida, and the still more unusual deformities of encephalocele or exencephalus will of course be at once noted. Their treatment fills chapters in text-books on surgery; unfortunately operative results are rarely of practical value.

Weighing.—These various matters having been attended to, and a careful inspection made, the child should be weighed accurately with the weight of the blanket and other clothes deducted, the measurements taken if such records are kept, and the nurse is then directed to oil the child with sweet oil of some kind. This is much better than vaseline which does not mix well with soap, later on when the bath is given. The infant is then wrapped warmly, a hot water bottle is placed against the abdomen, and the immediate care of the infant at birth is finished.

Nursing and Feeding during the First Few Days, i.e., until the milk comes.—It is a common mistake to have the child nurse frequently before the breasts are filled. The result of frequent nursing during the first three days is almost invariably to cause sore nipples. Then when the breasts are engorged the nipples are so sore that the mother is subjected to torture at every nursing. Caking of the breast, mastitis, and even mammary abscess may easily supervene. It is better to put the child to the breast about four times a day until the milk supply is abundant. If this infrequent nursing is insufficient to satisfy the hunger of the child it may be supplemented by a dilute modified milk or even with condensed milk. Condensed milk is usually spoken of by children specialists only to be condemned but during the first few days, while waiting for the milk to be freely supplied by the mother, it will often prove a great comfort to all the family. It must be well diluted 1-32 or 1-40, and its prolonged use is not recommended. If the child is not very hungry, sugar water will take the place of the milk, or even simple boiled water given in a small bottle with a nipple. A competent nurse can keep the child quiet and contented and save the mother much suffering by a combination of feeding and nursing during this early period. Regular hours should be insisted on from the first. Beginning about six hours after the birth, to enable the mother to get needed sleep and to rally somewhat from the shock of childbearing the child should be fed in one way or the other every three hours until the breasts are full.

Once the breasts are able to supply milk, however, artificial feeding should be stopped and regular hours for nursing established. In most households it is best to begin nursing at five o'clock in the morning and thereafter regularly every two hours, on the odd hours, until eleven o'clock at night. Breasts should be alternated at the nursings and both breasts are not to be drawn upon at any one nursing. This will give each breast four hours in which to become filled. This plan will give nurse, mother and child an uninterrupted period of six hours for needed rest. Rarely is it necessary to nurse the child once during the night. It is better to make this night feeding from the bottle so that the mother will not be disturbed. Children not fed at night digest and thrive better, and the mother supplies milk of better quality because her sleep is not broken. This in turn tends to make her milk supply last longer because the mother is not so much exhausted.

Before and after each nursing as already stated, the mouth of the child should be wiped out with boric acid solution, and here it is necessary to add a few words as to care of the nipples, for the two subjects are intimately blended, especially during nursing. The nipples, too, should be wiped off with boric acid solution before and after each nursing. The greatest prophylactic against soreness and cracking of the nipples is to keep the child from nursing too often and to have the breasts so full that the child will not tug at or chew the nipple in its eagerness to obtain food. For tender nipples use a shield or less frequent nursing. For actual cracks stop the nursing temporarily according to the depth and location of the fissure. To nipples that are naturally dry apply some emollient such as olive oil or albolene, after each nursing. If the nipples are always wet with milk or perspiration some dry powder, such as boric acid, is best applied. At the end of nursing when fissures exist, spread the fissure well apart and paint it with a tooth-pick dipped in nitrate of silver solution, forty grains to the ounce. Surround the nipple

with a small mass of absorbent cotton through the middle of which a hole is made in which the nipple rests. Dust the nipple thoroughly with boric acid, and hold the breast well up with a snug breast binder which should be worn habitually after the breasts are engorged and during the period of lactation. When the woman is up and about a well-fitted nursing corset will hold up the dependent portion of the breasts. In some cases the compound tincture of benzoin may be used and an application of gauze moistened with boiled sweet oil.

Artificial Food.—So much has been written upon the subject of modified milk that a complete discussion of this subject is entirely needless. There are many devices and several hundred sets of rules for reckoning the proper percentages of milk to be given to children in those unfortunate cases where the mother cannot or will not nurse her child. My own solution of this riddle is a simple one. I have the mother procure the sterilizer and the bottles of the so-called "Hygeia" variety—a bottle with a wide breast-like nipple and with no neck to the bottle at all. The most careless servant can hardly fail to keep these clean. For mixing the milk I use the "Materna" graduated glass. The marks upon the "Materna" are often incorrect and the percentages are not given with mathematical precision, but the error is a constant one and can easily be allowed for. Where the accurately prepared Walker-Gordon milk preparations are available the problem is an easy one, but this is not often the case. With stupid nurse girls or with inexperienced mothers the use of this definitely graduated glass is a great help in securing good results. The formula is mixed in the early morning when milk and cream are freshest; the bottles are filled and plugged with cotton, and then pasteurized and placed in the ice box and only need to be taken out, warmed, and covered with the nipple to be ready for use.

A good wet nurse may be necessary in some instances but they are very difficult to find when they are most needed. Nearly all infants can be made to thrive on milk properly modified. Oatmeal water may be used instead of plain water in cases of constipation, and if this is not sufficient the addition of a simple teaspoonful of Mellin's food to a quart of the milk mixture will often give the stools the right color and consistency. When diarrhea is present barley water is the best.

Weighing should be done once a week. The mother can easily be supplied with a weight chart such as can be obtained from the Library Bureau, and the weekly record carefully recorded. It is of great importance to the physician to have such a record kept, but it does not do to lay too much emphasis upon this to the mother. Its normal variations in her mind are apt to be given an exaggerated value and to cause much anxiety. The weight is important only when considered in connection with the general condition of the child, and the only judge of its bearing in a given case should be the physician himself.

Bathing in the tub should not be practised until the cord is off and the navel thoroughly healed. This precaution will avoid that most fatal condition, infected navel. A definite time, preferably at ten o'clock in the morning, should be chosen from the first and adhered to. The bath should terminate and the child be dressed just before it is time for the child to be fed. Children differ greatly in the manner in which they react after a bath. It is a good plan for the physician to see for himself the effects of the bath upon the child, and to advise accordingly. If the infant be stimulated by its bath no change need be made, but if depression be caused, as shown by blueness of the hands and feet or by subnormal temperature, the bath should be made hotter and the duration shortened until the proper combination is secured.

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THE PNEUMOCOCCUS AS A FACTOR IN HEMOPTYSIS.[1]

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THE epidemicity of hemorrhage in tuberculosis has been noted by careful observers but no one has attempted to give an explanation of it. Those who have referred to it in literature either have suggested atmospheric conditions as the cause of it or have merely mentioned it as a curiosity. With the view of throwing light upon the subject we have undertaken a series of bacteriological studies and herewith present a preliminary report.

Theoretically we were led to believe that if any micro-organism had to do with hemorrhage it would most likely be the pneumococcus because in pneumonia there usually is some evidence of hemorrhage in the rusty sputum. We therefore decided to look first of all for the pneumococcus as the cause. We have studied the ejected blood of a number of cases of hemorrhage in all of which the pneumococcus was found present and we present four cases in which we give the clinical and the bacteriological picture. In one case we also give a pathological report.

Case I. Phipps Institute Case, No. 3,096. (Craig and Montgomery) Abstract.—The patient was admitted into the dispensary on January 24, 1905, and into the hospital on February 17, 1905. He was forty-seven years of age, white, and German. His highest weight had been 160 pounds and his weight on admission was 135 pounds. At the time of admission he had the whole left lung involved with a cavity in the upper lobe. Tubercle bacilli were found in the sputum. His temperature was 100.3° F., pulse 100 and respiration 32. On March 3, his

[1] From the Laboratory of the Henry Phipps Institute.

temperature went up to 102.2° F., his pulse to 124 and his respirations to 38. By March 17 his temperature had come down to 99° F. and on this day he had a hemorrhage. On March 18 his temperature went up to 101° F. and on March 19 to 101.4° F. By March 22 his temperature had come down to normal and on this day again he had a hemorrhage. After this the temperature did not again go above 100° F. On April 3 he had a hemorrhage of 18 ounces. It was the blood from this hemorrhage that was studied in the laboratory. On April 7 he had a hemorrhage of 40 ounces from which he died.

Laboratory Report on the Blood. (Ravenel and Irwin).—Examination of the blood in smears stained by Welch's method shows pneumococci in large numbers. Cultures also show streptococci. The sputum taken between the hemorrhages was washed in normal salt solution and plated. From the plates streptococci (diplo) and pneumococci were isolated; also *Staphylococcus aureus* and *albus*, and a sarcina.

Autopsy (C. Y. White) *Extract.*—Pathological Diagnosis: Chronic pulmonary tuberculosis with cavity formation. Subacute miliary tuberculosis of the lungs. Chronic fibroid pleurisy. Pulmonary hemorrhage. Acute splenitis. Diffuse nephritis. Hour-glass contraction of the stomach. The whole lower lobe contains irregular caseous nodules varying in size from two mm. to five mm. These areas of caseous bronchopneumonia are hard and feel like shot embedded in the lung tissue.

Laboratory Study of Cultures made at Autopsy. (Ravenel and Irwin).—Streptococci and pneumococci were isolated from the lung cavity.

Case II. Private patient. (Walsh and Bennett).—Male, white, aged thirty-three years. He had pleurisy and probably pneumonia in 1894, but had had no hemorrhages up to that time. He then had tubercle bacilli in the sputum. During the winter of 1901 to 1902 he had pneumonia and pleurisy with frequent hemorrhages. After that he was in good health and he reached the highest weight of his life just prior to his fatal illness in 1905, namely, 149½ pounds. In March, 1905, he developed a slight cold which did not discommode him. A few days thereafter, March 15, 1905, while on the street, he was taken with a hemorrhage following a slight cough. His temperature went up to 102.4° F. almost immediately after he was taken with the hemorrhage and rose more or less daily during the remainder of his illness. As a rule it varied between 100° and 101.4° F. His illness lasted twenty-six days and during this time he had 13 hemorrhages, the average amount of blood lost at each hemorrhage being eight ounces, although on two occasions it exceeded sixteen ounces. He was so sick from the beginning of his illness that a thorough examination was not possible. From the examination which could be made there appeared to be infiltration of the entire right lung with a cavity in the apex. The breath sounds were obstructed on both sides by large coarse moist râles and there was a pleuritic rub over the left apex. The pulse ranged between 98 and 110 until the seventeenth day of the illness, and then ran up to 120 and finally to 140. The respirations varied between 18 and 30 until the twenty-third day and then ran up to 44 and later on to 50. On the twenty-third day in addition to the ordinary treatment injections of anti-pneumococcus serum were begun, 20 c.c. being injected at 9 P.M. of that day and the same amount at 7 A.M. on the following day. Thereafter 20 c.c. were given every six hours until the morning of the twenty-sixth day of the disease when the serum was suspended on account of delirium. Under serum treatment the pulse came down from 140 to 116 and the temperature from 100.4° to 99.2° F. and the respirations from 44 to 32. On the evening of the twenty-sixth day the patient died suddenly just as the physician in attendance was preparing to give another injection of serum.

Laboratory Report of Blood. (Ravenel and Irwin).—Pneumococci and streptococci in about equal proportions. There was no autopsy on the case.

Case III. Private patient. (Flick).—Female, aged twenty-nine years, married. Began to show active symptoms of tuberculosis six months ago. She came under observation April 10, 1905. At that time she had infiltration of the upper lobe of the left lung with some softening and she had tubercle bacilli in the sputum. There was no evidence of the existence of a cavity. On April 25, her temperature was normal and her pulse was 80. On April 15, a patient with pneumonia was brought into the room next to the room occupied by her. The nurse who waited on the patient with pneumonia also waited on her. On May 5, she took a chill in the morning and had a hemorrhage in the afternoon. Her temperature went up to 99.4° and to 100° F. on the following day. On the fourth day it came down to practically normal. No physical signs of pneumonia could be made out. She got over the attack very speedily and on May 10, was again in a normal condition.

Laboratory Report of the Blood. (Ravenel and Irwin).—Blood shows practically pure culture of pneumococcus. Stained preparations show large numbers of pneumococci, with very few organisms of other species.

Case IV. Private patient (Flick). Female, aged twenty-four years, single. She came under observation March 30, 1905. She has had tuberculosis for some years. When she came under observation she had some infiltration throughout the entire right lung and in the upper lobe of the left. She had a cavity in the upper lobe of the right lung. She gave a history of having had a hemorrhage one year ago. On May 20, 1905, she had gained fifteen pounds in weight and had improved very much in every way. Her temperature at this time was normal and her pulse

was quite fair, ranging from 92 to 102. She was an intimate friend of Case III, and during the latter's attack was in very close association with her. On May 29, 1905, she had a hemorrhage. On the following day temperature went up to 102° F. and her pulse to 140. The attack lasted only a few days when her temperature and pulse came down to the previous condition. There were no physical signs of pneumonia to be discovered.

Laboratory Report on Blood. (Ravenel and Irwin).—Pneumococci in large numbers in stained preparation. Cultures of pneumococci isolated from plates. On the plates also were molds and a spreading bacillus, evidently contaminations from the mouth and container.

In addition to the cases here quoted we have a few others in which the pneumococcus was likewise found but we do not use them because in one instance our records did not connect the clinical history with the laboratory report in a way to make it absolutely reliable and in the others we did not get the pure blood but instead of it blood-streaked sputum. In one of our cases which we do not quote here and in which there were severe hemorrhages extending over considerable time, we got only sputum for examination after the hemorrhages had ceased. From the clinical history we had every reason to believe that the patient had had pneumonia of rather a severe type and we found pneumococci in the washed sputum given off some weeks after the hemorrhages had discontinued.

It will be noted that the streptococcus was present in most of the cases and the question may be asked why the pneumococcus is selected by us as the probable etiological factor. We have not lost sight of the possible influence of the streptococcus in the causation of these hemorrhages. In our examinations of smears stained by Welch's method the pneumococcus has been numerically vastly the predominating organism in every case except one. Our plates which have been made on serum-agar by the smear method, going through the series of four without reinoculating the platinum spatula, have shown approximately the same results, hence we feel justified in believing that the pneumococcus has been the most important organism present.

The number of cases which we present is too small to warrant any conclusions. Our facts, however, are very suggestive and open up a very interesting field of investigation. If the pneumococcus is responsible for the hemorrhages in tuberculosis we shall have to change our views about both the etiology and treatment of hemoptysis and we probably shall be able to prevent hemorrhages to a much greater degree than we have in the past.

In two of our cases we apparently had a history of exposure to pneumonia in the one and a history of exposure to another case of hemorrhage in the other. These two cases occurred in an institution in which four other cases of hemorrhage of which we did not get the blood for examination occurred about the same time.

The case of pneumonia was brought into the institution on April 15. A case of hemorrhage developed on April 21, another on April 23, and two more on April 29. Our Case III occurred on May 5 and Case IV on May 29. The nurse who waited on the pneumonia patient came in contact with the other patients in the institution and waited on some of them. The first five cases probably developed from the case of pneumonia and the last from the fifth case. The last patient was in intimate contact with the fifth, and not much in contact with the nurse who waited on the other patients.

We wish to express our appreciation of the courtesy of Drs. Craig, Montgomery, Walsh and Bennett in giving us their cases to report.

DERMOID CYSTS OF THE MEDIASTINUM.

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(Continued from Page 438.)

40. *Griesshammer.* Festschrift des Krankenhauses Dresden-Friedrichstadt. 1899, pp. 337-345. (Cited by Dangschat.)

A woman, aged twenty-eight years, complained for several years of dyspnea and pains in the left half of the chest. On operation a large dermoid cyst was laid bare which touched the thoracic wall anteriorly, posteriorly, and to the left. The pleural cavity was free from adhesions and was not connected with the tumor; together with the left lung it was pushed upward *in toto*. On account of the adhesions to the chest wall the cyst could not be removed; drainage was carried out and the patient was discharged well. The tumor consisted of a cavity containing a dirty pulp. The wall presented the picture of the skin without hairs.

41. *Mandlebaum.* A Case of Dermoid Cyst of the Mediastinum. *The American Journal of Medical Sciences*, Vol. CXX, p. 64. 1900.

F. G., female, aged thirty years, was admitted to the Mt. Sinai Hospital January 24, 1898. Family history negative. Previous history negative. Ten months before admission she noticed a small swelling on the right side of the chest anteriorly at the level of the third rib; no tenderness or redness here but it is at times painful. Four months ago it began to increase in size suddenly, but for the last month there has been no change in it. The patient continued to nurse her infant, and aside from the presence of the tumor she considered herself in perfect health.

Status Præsens.—Patient is tolerably well nourished. Opposite the third rib on the right is a tumor the size of an orange, the skin over it being freely movable; it is adherent to the underlying tissues. The mass is neither tender nor sensitive; it gives a distinct sense of fluctuation. No pulsation in it. Aspiration with a small

trocar reveals the presence of a thick, yellowish fluid of honey-like consistency. No pressure signs are observable. Cough and expectoration are absent.

Three days after admission the patient was operated by Dr. Gerster. The cyst was ruptured and a thick, brownish fluid containing small particles of gritty matter was evacuated. The cyst was found to be multilocular. The last pocket incised was seen to lead deeply into the thorax, when explored with a probe. By means of a scoop, a considerable amount of thick fluid, gritty, calcareous matter, and strands of hair were removed from the intrathoracic portion of the cyst, which was seen to occupy nearly the entire anterior mediastinum, the cyst wall being attached to the pericardium, diaphragm and right pleura. Five days after the operation the base of the right lung consolidated. Though signs of resolution occurred, the patient developed a toxemia and died March 17, 1898.

Autopsy.—The cyst found at operation was described. The inner surface presented several polypoid excrescences, covered with fine, short hairs. Tumor was also adherent to the large vessels in the mediastinum. The lining of the cyst resembled skin and contained a few sweat glands, and many sebaceous glands and hair follicles.

42. *von Török.* Teratom der Brusthöhle (Fœtus in Fœtu). *Zeitschrift für Heilkunde (Abtheilung für Chirurgie)*, Bd. XXI, p. 263, 1900.

A. L., female, aged four and one-half years, entered the hospital January 27, 1900, with the diagnosis of caries of the ribs. Three years ago an abscess appeared in the back; operation with the removal of a small piece of rib. For ten days the child had severe pains in the back, where a second abscess has apparently formed.

Status Præsens.—Child is small for her age and rather poorly nourished. She has scoliosis. Downward and inward from the angle of the left scapula there is a fluctuating tumor the size of the palm, part being above and part below the tenth rib. Pulse and respiration accelerated; temperature normal.

On January 30, 1900, the patient was operated upon. A cyst was opened from which a large quantity of fatty fluid escaped. On palpation an opening into the thorax was found under the tenth rib. On removing the finger long hairs appeared. A firm cyst wall resembling skin was seen in the wound. On account of adhesions only a part of the tumor could be removed; this contained bone and teeth and was covered with skin. February 14, examination revealed inflammation in the right upper lobe and the child died eight days later.

Autopsy.—In addition to the points noted at operation the tumor was seen to contain cartilage. The sac was firmly attached to the diaphragm and the vertebral column. Bronchopneumonia was looked upon as the cause of death.

43. *Foucher.* Contribution à l'Étude des Kystes Dermoïdes du Poumon. Thèse pour le Doctorat en Médicine, Lille, 1901, 8°.

The patient is a male, aged twenty-seven years. Family history negative. He had pneumonia at the age of six; since then his health has been excellent. Five or six months after completion of army service the present trouble began with cough, the paroxysms becoming more frequent, accompanied by vomiting; dyspnea was very severe. This condition persisted for about two months, then the symptoms gradually decreased and practically disappeared by June, 1899, when everything returned with the intensity previously described. From this time the affection continued to progress with periods of exacerbation alternating with remissions more or less long. About the middle of October, 1899, the patient was seized with extreme pain in the side, and Dr. Maillet (who furnished the history) found all the signs of a large pleuritic effusion which was resorbed little by little, but a slight prominence of the right side of the thorax persisted. The cough, dyspnea and vomiting increased in severity; at the same time the bulging grew more prominent. The patient entered the hospital February 10, 1900. Examination shows that the patient, in spite of his emaciation, has good musculature and is well developed. The dulness (see Figure 8) in front is absolute; it extends to within three finger breadths of the clavicle and is continuous with the hepatic dulness; the edge of the liver does not pass beyond the short ribs. On auscultation, no sound is heard over the dull area. Behind, percussion and auscultation are practically negative. Exploratory puncture was made in the fourth right interspace, just below and outside of the nipple. From the trocar there escaped a fluid, thick, greenish yellow, presenting all the appearances of a thick pus, and little yellowish, round balls, which resembled actinomycotic granules.

Six cm. of the fourth rib were resected and the pleura incised. A stream of thick, creamy matter escaped; a tuft of small hairs came away at the same time. The cyst contained 2-3 liters of sebaceous material. The cavity was lined by a grayish, uneven membrane. The fluid contained in the cyst included no formed material; it was an emulsion of fatty matter in a serous fluid. The small yellowish globules were formed of amorphous fatty matter and contained tissue débris. No crystals, nor fatty acids, nor cholesterin. Material was sterile; cultures negative. Patient had not completely recovered at the time of writing. Cyst was the size of a small mandarine.

44. *Sommer.* Dermoid Tumor of the Lung. *The New York Medical Record*, Vol. LX, p. 475, 1901.

The patient, a man, aged twenty-seven years, died of phthisis pulmonalis chronica. At autopsy both lungs were markedly tuberculous and cavernous. At the apex of the right lung was found

a cystoid body, containing masses of hair and some dentoid bodies.

45. *Christian.* Dermoid Cysts and Teratomata of the Anterior Mediastinum. *The Journal of Medical Research*, Vol. VII, p. 54, 1902.

The patient is a female, aged thirty-eight years. She has complained of "trouble in the chest" for the past six years. There is a history of night sweats. She has coughed up hairs at intervals for two years. For five weeks she has suffered from severe pain in the chest and has had cough with purulent expectoration. During this time there have been several attacks of hemoptysis, during some of which she has almost strangled. There was dulness in the right chest, and this has been noted to decrease in extent after attacks of coughing, during which much material was brought up. Several hours before death, on March 21, 1901, there was a gush of blood and pus from the mouth and with this material were mixed a few hairs.

Autopsy.—A tumor the size of a cocoanut is found occupying the lower part of the anterior mediastinum. On opening this a pint of fluid and solid material escapes. Right lung firmly adherent throughout and pushed backward and to the right by the tumor. Fibrinous pericarditis. The tumor is between the right lung and the pericardium; it extends upward to within 6.5 cm. of the apex of the right lung. It is not adherent to the diaphragm, though in apposition to it and to anterior chest wall. In the cyst there remains some greasy, soft, friable matter and long, delicate, curly, blond hair. The inner wall is smooth, glistening, whitish membrane. In parts of the tumor there are small, scattered, bony plates. An opening into a medium-sized bronchus is found. The lining of the cyst presents all the characters of skin.

46. *Medoci. Berliner klinische Wochenschrift*, Bd. XXXIX, p. 719, 1902. Budapester Brief.

The author observed a case of dermoid cyst in a suckling. It was located in the anterior mediastinum and perforated into a bronchus, which led to the expectoration of the characteristic contents (hairs, cholesterin, fat) on coughing.

47. *Fofanow.* Sluchai teratomi lyokhava. *Kazansky Meditsinskiy Journal*, II, p. 170, 1902. Abstracted as Ein Fall von Lungenteratom. *Centralblatt für Chirurgie*, Bd. XXIX, p. 1075, 1902.

The patient was admitted to the hospital with extreme dyspnea, weak pulse, cyanosis of the upper part of the body, and swelling of the right half of the thorax. Death occurred soon after the patient entered the hospital.

Autopsy.—A teratoma weighing 1,300 grams was found in the right lung. It consisted of connective tissue, fat, bone, cartilage, hairs and muscle tissue arranged in various combinations in different parts of the mass. The tumor contained numerous cysts.

48. *Türk. Wiener klinische Wochenschrift*, Bd. XVI, p. 203, 1903. Operative treatment by *von Eiselberg.* Zur Therapie der Dermoide des Mediastinum anticum. *Archiv für klinische Chirurgie*, Bd. LXXI, p. 575, 1903.

A woman, aged fifty-one years, was admitted to Neusser's clinic October 20, 1902, with the diagnosis of left-sided pleuritic exudate. Thorax was somewhat widened. Anteriorly the entire left half gave dulness (see Figure 9) of marked degree from clavicle to base of lung, extending into left axilla and terminating about in the scapular line. In the region of the dulness compression breathing, weakened bronchophony with bleating quality, absence of fremitus. Lower lung border is freely movable. Mediastinum is pushed about one finger breadth beyond the right sternal line, the heart near the right nipple line. Right lung negative. The patient hesitated about entering the hospital because she had no fever and felt well, except for cough and moderate dyspnea on exertion, which she had noticed since March, 1902. Roentgen examination showed nothing more than the physical examination. On November 10, an exploratory puncture was made in the posterior axillary line. Six trials gave no fluid. After the last, however, a drop of whitish, thick fluid came from the needle. Under the microscope this was seen to consist of large epithelial cells, for the most part without nuclei, which resembled the cells of the horny layer of the epidermis; cholesterin crystals were also found. The possibility of the cells having entered the needle from the skin after the repeated insertions of the needle was considered, and it was decided to repeat the operation. The patient left the hospital, making this impossible. On December 16 she returned; had felt sick and had had fever for two days. Physical condition was unchanged; slight evening rises of temperature (38.5° C.) which soon disappeared. On December 18, exploratory puncture was made in middle axillary line with a needle 7 cm. long. No resistance was met with, but no fluid could be obtained; on withdrawing it about ½ c.c. of an opaque fluid was expelled, having a thick, oily appearance, in which small particles were suspended. In addition to the previous finding fat droplets and epithelial cells with fatty degeneration were seen. Neither leucocyte nor erythrocyte was found. This gave the diagnosis of dermoid.

The operation was performed January 21, 1903, by von Eiselberg. He resected 25 cm. of the third and fourth ribs between the left sternal and anterior axillary lines. On laying bare the pleura one could see a white tumor through it, over which the pleura plainly glided. Pleura was opened, producing a pneumothorax; a slightly nodular, white tumor was exposed. Exploratory puncture of tumor gave a whitish fluid. Tumor was not firmly adherent, but too voluminous to be removed through the opening. Cyst was incised in the upper part and from several cysts which were opened about ¼ liter of friable, whitish contents escaped. Slight adhesions between tumor and lung and pericardium.

The tumor was removed, leaving a large cavity in which could be seen the completely atelectatic lung and the uninjured pericardium. The heart now came more to the left. The separate cysts contained a greasy, oily substance composed largely of cells of the epidermis. No hairs, teeth nor bones. Microscopical examination showed the lining of the cysts to be several layers of cubical epithelium. The recovery was somewhat protracted and the post-operative condition at times grave, but the patient did well eventually, so that two months after operation the following note was made: Patient looks very well, has only a small amount of secretion in the wound, which has healed; the left lung has expanded to the normal size and vesicular breathing is heard over it. Heart also normal.

49. *Predtschenski.* Dermoid Cyst in the Thoracic Cavity. *Praktitscheski Wratsch,* St. Petersburg, II, p. 55, p. 83, 1903.

V. S., female, aged nineteen years, entered Prof. Kishkin's clinic September 9, 1902, complaining of pain in the right side and severe dyspnea on exertion. The present disease began in the fall of 1900. Since the summer of 1901 the symptoms have been more troublesome. Hemoptysis for ten days. During the past summer the patient has been at home and has felt well.

Status Præsens.—Temperature normal. Lying on the left side produces severe dyspnea. Between the second and fourth ribs on the right there is a well marked protrusion. Expansion diminished on the right. Tactile fremitus is weaker on the right side and is absent over the prominence. No tenderness on palpation. Percussion of right apex gives relative dulness, increasing to the third interspace, where it is absolute: from the fourth rib downward it becomes clearer. Behind over the right scapula the sound is dull with a tympanitic shade; just above the inferior angle of the scapula the note is clearer between the two areas of absolute dulness. In the axilla the percussion note is duller, passing into absolute dulness. In the axilla the percussion note is clearer between the two areas of absolute dulness. Left lung normal. On auscultation vesicular is everywhere weakened on the right, with absence of breath sounds over the dull areas; dry râles and harsh vesicular on the left. Slight cough; mucopurulent sputum, no tubercle bacilli. Heart apex in the sixth interspace in the anterior axillary line; otherwise the heart is negative. Lower edge of liver extends two finger-breadths below the margin of the ribs in the mammillary line. Blood count normal. Exploratory puncture into absolute dulness in front four days after admission gave a yellowish, purulent fluid, containing pus cells, fat droplets, cholesterin crystals and detritus; culture negative. September 20, puncture was made behind under the scapula with like result. Diagnosis: Encapsulated empyema.

On October 5, 1902, the patient was operated upon by Prof. Bodroff. The seventh rib was resected in the axilla and a cavity was encountered, from which four tumblerfuls of thick, purulent fluid containing hairs and coagula were evacuated. October 9 the ninth rib in the scapular line was resected to drain a cavity not emptied at the first operation. Both cavities were drained. A month and a half after the second operation the patient was on the road to recovery. The right lung has expanded. A part of the cyst wall which was excised resembled skin in every way.

50. *Dangschat.* Beiträge zur Genese, Pathologie und Diagnose der Dermoidcysten und Teratome im Mediastinum anticum. *Beiträge zur klinischen Chirurgie,* Bd. XXXVIII, p. 692, 1903.

Female, aged twelve years, entered the surgical clinic at Rostock in August, 1899. She had always been strong and healthy. Since September, 1898, she frequently complained of a feeling of pressure in the left side of chest and temporary dyspnea. In April, 1899, she had the signs of pleurisy with effusion on left side, with marked signs of compression; heart palpable in fifth interspace to right of sternum. The border of dulness (see Figure 10) was not the usual one for pleurisy with effusion, since it curved from the third rib in front downward to the eighth rib behind. With marked diuresis the child recovered. Shortness of breath and cough remained; although there was no more fever, the dulness increased, so that it reached the clavicle in front and the eighth rib behind. On July 22, 1899, exploratory puncture in the fourth interspace, left anterior axillary line, yielded 400 c.c. of bloody fluid. Subjectively the patient improved; objective findings the same. A second exploratory puncture on July 3 was negative. In the next few days a manifest bulging occurred on the left side of the chest between the left sternal and nipple lines, and from the second rib down; the left side was more voluminous, and the dulness extended behind up to the spine of the scapula. Towards the end of August the general condition grew worse and marked dyspnea set in with rise of temperature to 40° C., on account of which the patient entered the clinic.

Status Præsens.—A thin, pale child, practically orthopneic. Face slightly cyanotic, pulse accelerated, small, same in two radials. Left side of thorax does not expand, but is more voluminous than right. Larynx negative. Distressing, dry cough without expectoration. Percussion showed some increase in dulness upward and to the right.

Operation by Dr. Chamisso, November 6, 1889. Exploratory puncture was made in fourth interspace near the nipple line and yielded 300 c.c. of a bright, light yellowish fluid which was clear at first, later cloudy. No more could be obtained here. Dulness, also dislocation of heart, remained unchanged. In the ninth interspace just behind the posterior axillary line offensive pus was obtained; ninth rib was resected, and a body with

smooth surface was found firmly adherent to the pleura costalis; this did not move with respiration. As the condition of the patient was bad, the operation was discontinued. Physical signs remained unchanged. Traube's space remained clear. On October 10, 1899, Prof. Garré operated. Serous exudate was obtained from puncture in fourth interspace, anterior axillary line; suddenly, thick, purulent material poured into the needle. The fourth rib was resected. A great deal of pus was evacuated; a cavity remained in which one could palpate uneven tumors varying in size from a hazelnut to a small apple. Microscopical examination of the pus gave, in addition to polynuclear leucocytes, clumps of streptococci and numerous pavement epithelial cells, both isolated and in strata. Two of the small tumors were excised and it was seen on examination that they were covered with a stratified pavement epithelium, having a horny layer on the surface. Patient stood operation well. General condition improved. Cavities seemed to decrease. In the back, soft vesicular is heard everywhere. Expansion of lung is also evident. December 3, 1899, she left the hospital. October 16, 1900, patient returned to hospital greatly emaciated and pale. Improved somewhat. Left hospital in January, 1901. Condition somewhat improved at Whitsuntide, 1902, though she had had hemoptysis twice.

51. *Dangschat. Ibidem. von Eiselberg.* Zur Therapie der Dermoide des Mediastinum anticum. *Archiv für klinische Chirurgie*, Bd. LXXI, p. 575, 1903.

M. S., female, aged eighteen years, entered von Eiselberg's clinic in July, 1900. She was taken with pain in the left side of the chest in September, 1899; grew worse in the following December. Early in 1900 a physician was consulted. Dulness (see Figure 11) was found over left lung, which was continuous with heart dulness in front, and reached behind to the angle of the scapula. Breath sounds over dull area greatly weakened. April, 1900, exploratory puncture with removal of a yellow, opaque fluid. In the middle of May, 1900, Dr. Heidenhain resected the third rib and exposed a cavity in the left upper lobe; an offensive, fatty material containing long hairs was evacuated. Since then a mucous, yellowish material, as well as atheromatous masses and hairs, have escaped from the wound.

Status Præsens.—Patient is well formed and well nourished. Heart and right lung normal. Thorax somewhat prominent above and below left clavicle. Diminished expansion on left side. Metallic note on percussion from apex to fourth rib in front, behind from apex downwards to a point just above the angle of the scapula. No change in note on opening and closing of the mouth. No breath sounds over this area. Over the lower half of the left thorax, somewhat weakened vesicular breathing. July 24, 1900, patient was operated upon. Inner surface of cyst previously found had appearance of normal skin, but there were numerous prominences on which dark blond hairs grew. Removal of the cyst was not feasible. Flaps were turned in and attached to inner wall of cyst. For several days patient did well. Patient then had three hemorrhages within seventeen days after operation, the last two from the internal mammary vein, and died as the result of the last one.

Autopsy.—Above and anteriorly the left lung is adherent to a hard tumor which here is contiguous to the inner surface of the thorax. The tumor extends from the costochondral line toward the left to the thoracic wall, is about 5 cm. from the heart apex below and opens above into the sac which extends anteriorly into the region of the apex of the lung. Left lung pushed downward. The anatomical diagnosis is: Dermoid cyst of anterior mediastinum. Cyst is the size of a child's head. Hairs are 1-1½ cm. long. Pieces of bone and cartilage are found in the wall.

52. *von Eiselberg. Ibidem.*

A child, aged three years, was brought to Albrecht's polyclinic with severe dyspnea and cyanosis. Examination gave the signs of pleurisy with effusion on the left side; exploratory puncture yielded a hemorrhagic fluid. Exitus occurred in a short time.

Autopsy.—A dermoid cyst was found in the mediastinum. The cyst was loosely adherent to the lungs. Microscopical examination showed that the tumor was a teratoma undergoing sarcomatous degeneration; in it bone and cartilage were discovered.

53. *Madelung.* Ueber Extirpation eines Dermoid des Mediastinum anticum. *Beiträge zur klinischen Chirurgie*, Bd. XLI, p. 217, 1903.

Sergeant S., aged twenty-seven years, was taken with pains in the right side of the chest and in the right shoulder in 1884. This condition persisted for three years, the patient being able to do light work. April 6, 1887, a tumor was found in the right supraclavicular space; this was punctured May 1, and a yellowish fluid, having a sheen on the surface, was evacuated. On incision a sound could be passed downward under the sternum. Two weeks later the patient developed an evening rise of temperature and dulness near the sternum gradually spread downward on the right side. The fifth rib in the axillary line was resected on June 16, and a seropurulent fluid, 2,000 c.c. in amount, escaped. Shortly afterward the patient, a strongly built man, first came under the author's observation. The wound healed, a fistula remaining above, from which there was a slight discharge; at times long black hairs came away, often rolled into a ball. Sounding showed the sac to extend far down beneath the sternum. The patient left in poor health in 1888. He died May 15, 1893; cause not known.

54. *Madelung. Ibidem.*

On July 7, 1803, the patient, N., a girl, then six years of age, had a fall and received a severe

blow on the right anterior thoracic wall. The next day signs of effusion into the right pleura were found; hemothorax was suspected. She was confined to bed for three weeks. The effusion subsided, but the child had a dry cough, as she had had, in fact, before the accident. In June, 1894, there was no sign of the effusion remaining. June 30 the patient was again taken with right-sided pleurisy with copious effusion. Exploratory puncture gave foul-smelling pus, and the attending physician, Dr. Killian, resected a rib below the right scapula; a large quantity of dark brown, foul, purulent fluid was evacuated. The patient entered the surgical clinic at Strassburg June 12, 1899. The child, now twelve years old, was pale and greatly emaciated. Everything pointed strongly to old empyema. A radiogram was taken. In the upper part of the right thorax there was functionating lung. From three fistulæ a copious, thin, watery pus escaped. Operation June 14, 1899. Behind the second rib an opening was made into a large cavity situated behind the sternum; in it was seen a projection about the size of the end of the thumb, covered with skin. This and an adherent tumor mass were removed. The cavity was packed with gauze. Recovery was uneventful, the temperature always remaining normal. September 29, 1903, there was good resonance over both lungs. Vesicular somewhat weaker in right back below than on left; otherwise negative. The patient, now sixteen years of age, is able to take walking trips into the mountains.

Histological examination of the tissue removed at operation showed the picture of a section of skin with epidermis, hair follicles, and sebaceous glands. In the tumor cartilage was found. The contents consisted of fat and desquamated epithelium.

55. *Shostak.* Dermoid Cyst of the Anterior Mediastinum. *Wratschebnaja Gazeta,* St. Petersburg, XI, p. 1087, 1904.

B. B., a female, aged twenty-two years, entered Simbirsk Hospital July 20, 1903. Patient remembers a tumor in the jugular region since childhood. One year ago she began to cough violently. Three weeks ago the patient caught a cold and the tumor began to grow rapidly, occasioning some dyspnea and dysphagia. There have been chills and frequently a feeling of numbness in the right hand.

Status Præsens.—Patient is poorly nourished, pale, some cyanosis of the visible mucous membranes. Pulse alike in the two radials. Neck is much thickened and irregular; there is a tumor the size of a man's fist anteriorly and below, which extends to the right and is continuous with another above the clavicle. It pulsates synchronously with the radial pulse. The skin over it is thin; veins dilated. In the region of the right scapula there is a prominence. Breath sounds are absent in front down to the third rib and behind up to the spine of the scapula. Percussion gives dulness in front confluent with that of the heart. Left lung normal. Auscultation of heart negative. Exploratory puncture gives a somewhat yellowish pus.

A wide incision two finger-breadths outside the median line in the neck gave three tumblerfuls of purulent fluid mixed with small yellowish coagula and a mass of hair. The finger introduced into the wound descended into a cavity behind the clavicle and scapula; the bottom could not be reached. Posteriorly the finger entered a separate pocket. The cavity was drained. August 4, 1903, the patient died. No autopsy.

56. Author's case.

(To be Continued.)

THE COUNTRY PRACTITIONER.[1]

BY E. R. RILEY, M.D.,
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The country practitioner as a surgeon seems ludicrous to the larger part of the profession to-day, so great has been the retrograde change that has almost imperceptibly taken place. The trend of the present surgical status is to deteriorate the ability of one, and increase that of another; so to educate the laity that they will soon lose all confidence in their family physician and seek the advice of some hospital attache for every ailment, because of his larger experience.

The practice of medicine is a broad subject, and all of its branches cannot be fully grasped in detail by any one mind which at the same time enters the field of practice, so, of necessity, there must be specialists; but just where the specialty begins and general work ends is a question that must be answered by each individual practitioner alone. At present the lines are being drawn too closely and the tendency is to make the general practitioner in the country a weak man, at least in a surgical way. That the average country practitioner is a fair diagnostician can hardly be disproved, and that his general practice makes him an all-around man cannot be denied, yet so thorough has been the so-called education in a surgical way, that he approaches a case from all sides, except a surgical one. So thorough has been the training of the public that if the general practitioner has a case at all, it either belongs to the specialist, or else is a case where some of the more elegant preparations of some pharmaceutical house alone are required.

Almost all cases of surgery are given the glad hand on their departure for the city, because of the country practitioner's open acknowledgment of the superior ability of his city brother, and I want to say that his city brother deserves the esteem, because his experience has been greater, his knowledge of surgery has been added to by the cases sent him by the country practitioner. The country practitioner has been so busy looking after the interest of medical cases that he has not even attempted a review of surgery from any standpoint.

[1] Read before the Kansas State Medical Society at Wichita, May 5, 1905.

There are cases where the people are too poor to go to the city to receive surgical attention, and to-day those cases are neglected. Given a case of appendicitis in a very poor family, and the general practitioner in the country tries to resurrect a treatment for a condition for which one author says, "There is no medical treatment," and after a steady advancement toward a fatal end, bemoans environment, public opinion, etc., and watches death do its work without the least intimation of the city, hospital, etc., because he knows that the financial, as well as the physical, condition of his patient will not stand it. Supposing the case in a well-to-do family and the patient is advised to go at once to the city and receive surgical care for his condition. If the case be an acute attack, and yields to treatment, he will never consent to go during the interval between attacks and when a second attack takes place you hustle him to the station, place him on the train, and proceed to ship him to the city, although during the trip to the hospital from home, there is every chance for trouble from traumatism.

Too many cases of appendicitis are sent to the hospital. When you look at the ill-effects of travel, you certainly ought never to send a patient with appendicitis to the city, except during the interval. If the country practitioner feels himself incompetent, it is his duty to have the surgeon brought to his cases of appendicitis instead of sending them to the city. Strangulated hernia treated by the country practitioner, receives enough traumatic injury generally to kill before even an anesthetic is given, and from the beginning of the administration, usually the injury to the parts is too great before complete anesthesia has taken place. The American Text-book of Surgery says ten minutes is long enough to use taxis, that is, under complete anesthesia; but the country practitioner usually reads it ten hours.

There are so many sufferers from hernia throughout the country, who from year to year continue to burden themselves with trusses, and the country practitioner seldom, if ever, tells them of a radical operation for the cure of a condition that he knows can never be cured by truss wearing. So low is the mortality in these cases that operation for the radical cure should be advised by all in nearly all cases. Many a case of minor surgery is neglected until the damage done is too great to be easily repaired, and thus becomes a case for shipment.

The country practitioner who gives no thought to surgery other than to bemoan his environments and send his patients to the city is the rule, not the exception. Regarding environment, I wish to quote from Ochsner's work on Clinical Surgery. After advising hospitals as the place for surgical work he says, "As a matter of fact, there is but one point to be borne in mind in the arrangement of a room for operating, namely, infection, and that no wound infection is to be considered, except from contact; not that infection from the air is absolutely impossible theoretically, but that practically a wound remains aseptic unless infectious material has been placed in it by dirty hands, dirty instruments, appliances or sponges, ligatures, sutures or dressings, unless the infectious material existed in the patient's body at the time of operation," and continues with this statement, "but in any case in which a clean surgeon with clean assistants and clean appliances operates on a clean patient, it can be expected with a fair degree of certainty that the wound will remain aseptic, no matter what the surroundings may be."

The country practitioner usually reduces a dislocation or treats a fracture and seldom if ever loses a great deal of sleep over the worst cases, yet the city surgeon will approach a dislocation or fracture with the one thought, that it is a walking advertisement of either inferior or average ability, and actually loses more sleep over a simple fracture than an abdominal section. Thus the country practitioner assumes the burden of responsibility that seems to rest heavy on the city surgeon. Why? The public is accustomed to having fractures reduced at home. If he accepts the responsibility and takes the chances that bring little money or prestige and may bring criticism and damage suits, why not attempt operations that bring money and fame with less chance of disgrace. The day is dawning when the country practitioner will refuse longer to act as shipping clerk for his proud city confrères.

That our environments are bad is true; but, with all due respect to the hospital and city surgeon, we can make the average home as sterile, and our hands as surgically clean, and, if capable, we can with impunity attempt the same work with the same assurances of success that the operator in the city has. We have even better chances for success, by having, as a rule, patients who are in the beginning physically able to stand shock and are good subjects to withstand any ordinary complication in a surgical way. It may be true that certain cases belong to the specialist, but it lies with the country practitioner to say whether it is so of surgical cases, whether he shall send all of his major operations to the city or not. Each country pratictioner must be the judge as to where the specialty begins, and that decision must be arrived at conscientiously, leaving in the dark public opinion. No man should allow public opinion to debar him from his duty. We should not overlook our duty toward out patient, be he poor or rich, and should ever hold before us one thought—competency. We should not let conservatism take the place of common sense. Conservative surgery is all right, but the country practitioner is too prone to neglect or omit and call it conservatism, when in reality it is as much a malpractice act to neglect as it is to do wrong in the first place.

Unless there is a radical change, it will only be a short time until surgery will be an extinct

feature of country practice, and if a change is to be made it must be brought about by the country practitioner. He must do more surgery, and competency is to be obtained by study and postgraduate work. Every two or three years should find us spending our vacations at some postgraduate school and visiting the hospitals and preparing ourselves for work. After we have become competent we can more easily overcome the few drawbacks of environment and let public opinion change to suit the occasion.

Speaking of the country practitioner, from a surgical standpoint, I often wonder if the city surgeon does not look upon him as the soldiers did upon "D'ri" in Bacheller's work, "D'ri and I," and think he needs rest, etc. I think it time for the country practitioner to go on guard duty without the countersign, and halt every case of surgery, if he be competent.

MEDICAL PROGRESS.

THERAPEUTICS.

Chronic Acetanilid Poisoning.—Alfred Stengel (*Journal A. M. A.*, July 22, 1905) gives the histories of two additional cases of chronic acetanilid poisoning, both of them of interest from a diagnostic point of view. The first had been regarded as an obscure vascular disorder, and even after the cause was suspected, it offered some difficulties on account of the lack of morphologic changes in the blood. Some recent experimental work of Dr. C. Y. White, however, seems to indicate that these are not always readily producible. Another point of interest mentioned is the denial by the patients of the use of the drug which Stengel is inclined to attribute to a moral disturbance during the continuance of the habit; it agrees with his experience in other cases. After their recovery the patients readily admitted the facts. The polycythemia in one of the cases was also of interest, perhaps the more so as there was with it no splenic enlargement, which is common in chronic acetanilid poisoning. This combination had led him to the suggestion on a previous occasion that some of the cases described by Osler as chronic polycythemia with cyanosis and enlargement of the spleen might be due to acetanilid. Lastly, he calls attention to the ease with which neuralgic symptoms were controlled after the withdrawal of the acetanilid. It seems, he says, that the continued use, instead of controlling the neuralgic manifestations, acts as a depressant, and that they occur with even greater frequency than before taking the drug.

Intravenous Injection of Ergot.—Torald Sollmann and E. D. Brown (*Journal A. M. A.*, July 22, 1905) report the results of experiments, made chiefly on dogs, to determine the circulatory effects of the ergot preparations as found in the market, in therapeutic doses, normally and in the pathologic conditions in which the drug is recommended. Intramuscular injections were first employed, but the effect was so slight they changed to the intravenous method, that used by other investigators. The animals were anesthetized, the injections made into the femoral vein and the blood-pressure tracings taken with a mercury manometer, the connection being filled with 25 per cent. magnesium sulphate. The conclusions reached are, in substance, as follows: The typical effects of the intravenous injection of ergot consist in a large and abrupt fall of blood pressure, followed by a prompt recovery, and generally by a slight and short rise. The volume of the organs varies generally in the same direction as the blood pressure. The changes in the latter are mainly cardiac. This is confirmed by myocardiograms from the intact and excised heart. Ergot causes first a lessening and then an increase of the excursions; both phenomena may occur while the ergot is being injected; the rate of the heart is but little altered. The effect must be directly on the cardiac muscle. There is some oncometric evidence that ergot has a slight vaso-constrictor action, but this is slight and inconstant. There was no evidence of strong constriction or of high rise of blood pressure. With intramuscular injections the preliminary fall of blood pressure is absent. The action is independent of the dose, within wide limits. The relative predominance of fall and rise vary somewhat in different preparations; age, however, does not impair their effect on the circulation. Lowering the blood pressure by any method greatly lessens the effects. Shortly after the destruction of the spinal cord, however, ergot produces a relatively good rise of pressure. Large doses depress the vagus center and the vasomotor endings. It is not acutely fatal, however, in very large doses. The experiments do not point to any useful therapeutic action of ergot in modifying the circulation. The authors, however, do not wish to be understood as denying the clinical evidence in its favor, they merely claim that it lacks experimental evidence in its support. Its peculiar effect on the combs of fowls indicates that certain animals and certain vascular areas are more susceptible to the constrictor action of the drug. It may be so with man; it is conceivable that acting unequally on different organs, it may thus be of benefit in the obscure conditions in which it is recommended. In the face of the negative experimental evidence, however, they think that clinical conclusions should be formulated with caution and conservatism. In conclusion, they notice a peculiar effect, closely resembling that of ergot, that followed the intravenous injection of 0.9 per cent sodium chlorid solution. This occurred in three dogs and only when the blood pressure was high, and best with rather large doses. It was also most noticed when the ether had been removed for some time and ceased entirely when the animals had passed into shock. The article is a long one, with numerous illustrative tracings.

Treatment of Epidemic Cerebrospinal Meningitis with Diphtheria Antitoxin.—G. L. Peabody (*Med. Rec.*, May 13, 1905) gives the results obtained in twenty-two cases of the disease treated in this way by himself and Dr. Jacobi in the Roosevelt Hospital. In all but one the diagnosis was proved by finding the meningococcus in the spinal fluid. Of the twenty-two cases four received the antitoxin only subcutaneously, seven received it at different times both subcutaneously and intraspinously, and eleven received it only intraspinously. In only one case did it seem to cause any unpleasant effect. The mortality of the twenty-two cases, while still uncertain, will go well beyond fifty per cent., and the percentage of recoveries to date is a little over nine. There has not seemed to those who have watched the cases, to have been any influence for either good or evil ascribable to the antitoxin treatment.

Treatment of Epilepsy.—A. Strümpell (*Deutsch. Arch. f. klin. Med.*, Vol. 84, Nos. 1 to 4) states that many cases of epilepsy are not benefited much by the usual bromide therapy, since in the place of an occasional attack of convulsions they will now suf-

fer from chronic bromism, which renders them absolutely unfit for any mental work. If the patient is seen after the first attack, an attempt should be made to prevent recurrence by hygienic measures alone. This is also indicated in those cases where the attacks recur no oftener than every two to three months, and frequently the proper diet, with attention to the bowels and suitable occupation and surroundings, will mean a permanent cure. Unfortunately, the bromides cannot be replaced in severe cases, and even bromipin is not always well tolerated. In certain instances, atropine, either alone or in combination with oxide of zinc, will accomplish much. The preparations of valerian will also occasionally ward off an attack, but no permanent results have attended its use.

Action of Diuretics on the Kidney.—O. Loewi, W. M. Fletcher and V. E. Henderson (*Arch. f. exper. Path. u. Pharm.*, Vol. 53, No 1) have discovered that the intestinal vessels do not contract under the influence of caffeine, and that diuresis is also pronounced in narcotized animals, hence they believe that the slight rise of blood-pressure is not due to an irritation of the vasoconstrictor center, but to direct action upon the heart. The vessels of a kidney entirely deprived of its nerves, are not in condition of extreme dilatation, since caffeine will dilate them still more. This is caused by a direct action of the drug upon the vessel-walls, and also occurs when the nerves are degenerated. In a few cases dilatation did not occur under the influence of caffeine, but even here more blood passed through the kidneys. This latter phenomenon is the real cause of the caffeine diuresis; it may occur without diuresis, but diuresis is never seen without an increased flow of blood through the organs. Experimentally as well as clinically a certain degree of tolerance toward caffeine will be established, since the renal vessels will no longer react toward the drug, but in such cases, urea will still bring about a diuresis. The increased activity of caffeine in nephritis as compared with conditions where the kidneys are healthy, speaks in favor of the Traube-Cohnheim theory of nephritis.

Inoculation of the Horse with Syphilis.—A further contribution to this important subject is made by Piorkowski (*Deut. med. Woch.*, June 8, 1905), in which he describes the later observations on the horse inoculated some time ago with blood taken from syphilitic patients. The latter had been treated with mercury, it being the author's idea that the parasites, being affected by the drug, would give up their poison more readily. Five to ten c.c. were injected every three to four days, and the only sign of a reaction was a slight rise of temperature. Four weeks after the first injection, an eruption appeared, which spread, until after another eight weeks the entire body was covered with papules. The hair fell out in patches, and at the time of the last observation, six months after the experiment was begun, some of the papulæ were still present and new ones were forming. On the animal's back there was a bald spot as large as a child's head. A number of glands were temporarily enlarged. The objection was made that these manifestations might be due to the injection of the foreign albumin, but the author thinks that the reaction was too severe for this. A second horse was injected with blood from the first and soon developed similar lesions, as did also rabbits which received the blood of the second horse. No conclusions are presented, but further observations may throw some more light on the subject.

Value of Theophyllin.—A series of 855 cases, which have been treated with theophyllin, has been analyzed by M. Sommer (*Therap. Monatshft.*, June, 1905) with the following results: In 653 cases the drug accomplished the desired effect; in 64 the improvement was only relative, and in 127 no good results were seen. In 175 patients, theophyllin brought about a satisfactory diuresis after most other diuretics had failed, and in 110 diuresis was much more marked with theophylin than with the other drugs. No difference in action could be detected between the pure drug and the various salts on the market. After-effects were seen in as high as 35 per cent., but in the great majority these were very slight and chiefly gastric (vomiting, diarrhea and nausea). Two patients died soon after taking a powder, but it is impossible to decide if the latter was really responsible, since the cardiac weakness was extreme in each case. Collapse was observed three times, and in a large number such minor disturbances as languor, insomnia and general nervousness. The best results were seen in cardiac hydrops and (contrary to some observers) in acute nephritis, but good can also be accomplished in chronic nephritis, cirrhosis of the liver and in exudative pleuritis. Often the first dose is not well borne, but a tolerance is soon established. At first no more than 0.1 grams should be given.

GENITO-URINARY AND SKIN DISEASES.

Trichorrhexis Nodosa.—M. L. Neidingsfeld (*Jour. of Cutaneous Dis.*, June, 1905) in a discussion of the etiology of trichorrhexis nodosa arrives at the following conclusions: Trichorrhexis nodosa is both a normal and pathological process. It is universally present in long uncut hair as a normal condition, and is probably nature's method of physiologically arresting and stunting an otherwise unlimited and eventually cumbersome overgrowth of hair. When present in excess in a predisposed individual, it becomes a pathological process and abnormally stunts the growth of hair; the nodes are more prominently wounded and are often multiple, separated from each other by uniform intervals of normal hair shafts. Its etiology has been variously attributed to trophic, parasitic and mechanical influences. A mechanical causation is improbable on purely clinical grounds, and is incapable of artificial demonstration. The condition in brushes can likewise not be attributed to purely mechanical causes. A parasitic causation is not commensurate with the evidence thus far adduced from clinical studies, and bacteriological investigations. The most rational explanation of its etiology from physical, bacteriological and clinical investigation, and its analogy to kindred and associated changes in the hair rests in trophic influences, emanating from the metabolism at large, and permeating the hair to its ultimate extent.

Radiology.—During the past year the scientific and practical aspects of the subject of the physics and therapeutics of radio-activity has become of keen interest to the medical world, owing principally to the reports of the wonderful properties of radium and its use in treatment of disease. Many of these reports, even in medical journals, were, considering the superficial data given and lack of scientific methods shown, plainly unreliable. Wm. Sickles (*Wisconsin Med. Jour.*, April, 1905) gives a plain statement of the actual status of radio-activity at the present time. The tendency on the part of mod-

ern writers to include under the term, radio-activity, all the radiations from radium, the X-ray and the ultraviolet rays, is scarcely justified from a purely therapeutic standpoint. There is a great difference between the etheric vibrations of the ultraviolet rays and the X-rays, and the projected corpuscles of radio-active substances. The cathode ray can be demonstrated in a rather "low" vacuum tube, in which it is seen as a bluish line extending from the cathode to the anode. This consists of particles carrying an electric charge, and they may be deviated by a magnet, and will affect a photographic plate. Proceeding from the target and passing through the tube to the outside there is the X-ray, an example of radiation supposed to be produced by the intense disturbance in the ether when the rapidly moving bodies of the cathode ray are arrested by the target inside the tube. The rays from radium consist of three kinds, named the alpha, beta and gamma. "The alpha radiation is very easily absorbed, being unable to penetrate more than a few millimeters of air at atmospheric pressure; the beta ray is more penetrating, while the gamma ray is the most penetrating of all." "Williams has recently shown by some convincing experiments that the beta rays, which deflect them in the same direction as the cathode rays, are analagous and that the gamma ray corresponds to the X-ray." . . . "Pure radium being unstable in air, the salts only, usually the chloride or the bromide, are used." The strength of a specimen of radium is generally referred to that of uranium. The purest specimens of the chloride have an activity of about 1,800,000. "The strength of a given specimen of a radium salt can be crudely measured by its ability to penetrate sheet iron. The finest quality will easily penetrate a mass of iron over two inches thick." Judging from the reports of marvellous improvements, it would seem that American physicians had little difficulty in getting radium, and most of the radium here is known to be useless and of low activity. "Most of the cases treated in this country have been with a radio-active salt of from 300 to 7,000; but two or three small amounts of radium bromide, of 50 milligrams each, have been brought to America, that is of the highest activity, 1,600,000 to 1,800,000. This quality only (higher if possible, certainly nothing lower) should be used for therapeutic experiments."

The medical use of radium will be confined to therapeutics, as radiographs cannot be satisfactorily made with it. A considerable number of cases have been treated here and abroad with varying success, and the same precautions as with X-ray seem indicated. From a number of cases reported from reliable sources it may be stated that radium is useful in a number of cases of skin disease, but nothing definite can be said of it for the present.

Considering the prefatory remarks to this paper, regarding the ignorance of many writers on the subject, it will perhaps not be taken amiss if we point out to the writer several slight inaccuracies in the present paper, and refer him to the article by Dr. Piffard, on radio-logic misinformation in the MEDICAL NEWS, April 29, 1905. Williams will be surprised to learn that he is responsible for demonstrating that the beta and cathode rays are identical and that the gamma and X-rays are the same. It may be, as the author says, that radium is unstable in air, but as no pure specimen of radium has ever been isolated we cannot say for certain, and will thank him for his authority. That the strength of radium may be approximately determined by the penetrability of the rays is scarcely true, and as to the penetration being two inches for the purest specimens, we may say that we did not know that the radium possessed any penetrative power at all, but that the gamma rays had been demonstrated to possess a penetrating power easily discernable through twelve inches of solid iron. Regarding the statement that only specimens of 1,800,000 or stronger should be used in experiments, it is hard to see how one is to use stronger, if that is the strongest; and regarding the statement that weaker specimens should never be used at all, we may add that the most successful experimenter with radium in New York, Dr. Robert Abbe, has performed all his experiments with radium of 300,000 activity and less. Also we respectfully refer the writer to the law or equation formulated by Dr. Piffard connecting the mass activity and result of radium applications.

Measure of X-Rays.—The importance of a reliable method of measuring the X-rays needs no argument, in view of the multiplicity of attempts made to devise such a method since the general adoption of the X-ray in medical science. MILTON FRANKLIN (*N. Y. Med. Jour. and Phil. Med. Jour.*, April 22, 1905) presents a special form of electroscope for this purpose. The X-rays ionize air or other gases through which they pass, rendering them conductors of electricity, and a measure of the quantity of electricity transmitted through a given mass of air under a given pressure will accurately indicate the activity of the ray causing the ionization. The method is substantially analagous to that used for the purpose of measuring the radio-activity of the radio-active elements. In order that the results obtained by different observers at different times be comparable, it is absolutely essential that the electroscopes be identical in dimensions as well as in design. Some form of static electrometer might be used, but the complexity of the instrument and skill required in its manipulation debar it from general use. With a specially designed electroscope of the gold leaf pattern, on the other hand, the whole process of measurement may be completed by anyone in the space of thirty seconds. Variations in the condition of the atmosphere are provided against by the introduction of a dryer in the air chamber, which is sealed. Absorption in the atmosphere is compensated for by placing the instrument at the exact distance from the tube at which it is desired to utilize the rays.

An Instance of Staphlococcic Infection of the Tonsil Simulating a Chancre.—D. W. MONTGOMERY (*Jour. of Cutaneous Dis.*, May, 1905) states that in the diagnosis of chancre in its usual situations, the danger lies in mistaking lesions that are not chancre for chancre, while on the contrary, when chancre occurs in an unusual situation the danger lies in considering it to be some other affection. The author states that in the diagnosis of chancre of the tonsil the following possibilities to error may be found. The lesion is most frequently taken for a simple tonsillitis, or grippe, or a staphylococcic or a streptococcic sore throat. The next most frequent error is supposed to be diphtheria. It is sometimes mistaken for a mucous patch or an epithelioma.

Gonorrheal Pleurisy.—While gonorrheal pleurisy is not so frequent a complication of gonorrheal urethritis as rheumatism and cardiovascular affections, due to the same agent, yet that it is occasionally seen

is shown by Lemoine and Galldis in (*Revue Pratique des Maladies des Organes Génito-Urinaires*, No. 7, March 1, 1905), who report a series of cases. Ten cases are reported in which pleurisy followed an urethral discharge, accompanied in many instances by arthritis, endocarditis and pericarditis. It is to be regretted that no bacteriological examinations were made in these cases, but as the authors were competent observers, who eliminated rheumatism and tuberculosis, the diagnosis is very probable. Dr. Mazza reports the case of a girl of eleven years who had a gonorrheal discharge which was followed by polyarthritis, endocarditis, pericarditis and double pleurisy. In the pleural exudate were leucocytes, endothelial cells and diplococci. Pure cultures of gonococci developed in cultures of agar and blood serum from the pleural fluid. Bertrand's case was taken with pain in the side some days after the appearance of a gonorrheal discharge. Signs of effusion prompted thoracentesis. Fluid was obtained and at the end of aspiration a deposit was withdrawn. Cultures were negative, but the deposit showed by Gram's stain organisms which corresponded with gonococci in their morphology. Cardile's case was that of a young woman who contracted gonorrhea from her husband. Later a pleurisy developed, which lasted two months, without other symptoms. By centrifugalizing the pleural fluid gonococci were demonstrated alone; later they were found associated with another diplococcus. Jicinisky reported a case supposed to be tuberculous pleurisy. A more careful history showed that the patient had had an urethral discharge some months before. Examination of the sputum showed almost nothing but gonococci, and a few days later gonorrheal epididymitis lighted up. Fisher mentions the case of a man twenty-six years old who had had gonorrheal urethritis four years previously, from which time the discharge had been constant. He was suddenly taken with pleurisy, and in his sputum gonococci were present, but no tubercle bacilli. Lemoine and Bombart add another case where gonococci were demonstrated in the pleural effusion. Male, aged thirty years, had gonorrheal urethritis in July, 1896, which was neglected and lasted several months. February, 1897, the patient was taken with pain in the left side of the chest. March 25, 1897, aspiration was performed and fluid withdrawn. It was necessary to aspirate often, and by the end of August, 1897, twenty-five liters had been withdrawn. The pleural fluid showed gonococci in pure culture. A rib was resected to afford better drainage, but the patient sank steadily and died November 21, 1897. In these sixteen cases reported, four were of gonorrheal origin without doubt, as the organisms were found in the pleural fluid. These cases show that the pleurisy may come on with the urethral discharge or be delayed as long as four years. Next the question arises as to how the gonococcus reaches the pleura. The authors think that the most probable avenue of transfer is the blood, since the gonococci have frequently been found in the blood. There are various other suppositions as to the course of the complications of gonorrhea, such as that it is due to toxin or secondary infection or mixed infection, but these theories must give way to the actual finding of the organism.

Ethyl Chloride in the Treatment of Zoster.—To relieve the discomfort and pain which is one of the prominent symptoms of zoster, Morrow (*Jour. of Cutaneous Dis.*, April, 1905) recommends the use of ethyl chloride, acting as a counterirritant. It is used as follows: An area the size of a silver dollar is frozen at a point where the nerve emerges from the spinal column. While this usually relieves the pain along the entire nerve, it is better to freeze areas where the pain is localized. Generally this treatment relieves the pain for a day or more, but in some cases only for a few hours. When this is the case there is no objection to using the ethyl chloride frequently. He reports its use following its successful application upon ten cases.

Ringworm of the Scalp Cured by the X-Ray.—The chief reason why ringworm of the scalp is so obstinate to treatment is shown by Sabouraud and Noiré (*La Presse Med.*, 1904, page 825) to be due to the inability of the various antiseptic preparations employed to penetrate to a sufficient depth to act efficiently, as the root of the hair is inaccessible to external antiseptics. The authors have experimented considerably with microbe toxins and the salts of thallium, with the view of temporarily suspending the functions of the hair papilla. They finally arrived at a solution of the problem by the use of the X-ray, and have had very favorable results. On account of the numerous accidents and permanent alopecia which have followed the use of the X-ray in the hands of many operators, the method as given by Sabouraud and Noiré is particularly to be emphasized. The main point in their technic for the employment of radiotherapy consists in the use of the radiometer of Sabouraud and Noiré. This consists of a circular wafer of paper coated with an emulsion of platino-cyanide of barium in a collodion of amyl-acetate, and has the property of changing color under the action of X-rays in proportion to the quantity of rays absorbed. By comparison of an exposed wafer with a scale of colors it becomes easy to determine the exact amount of exposure necessary to produce a complete depilation without any of the attendant dangers of permanent alopecia. The technic of treatment is as follows: To cure a patch of ringworm of the scalp by the X-ray, place the patch at a distance of 15 centimeters from the center of the focus tube and place at the same time a disc of platino-cyanide of borium paper 8 centimeters from the center of the tube. When this disc has taken the color corresponding to the tint "B" of Sabouraud's radiometer, the operation is terminated. About seven days after the treatment a slight erythema results, and in about fifteen days the hair falls out. Cultures show that the fungus is not destroyed, so consequently, to prevent reinfection, the scalp is thoroughly anointed with an ointment containing oil of eade, the following morning the head is carefully shampooed and a weak solution of tincture of iodine rubbed over the entire scalp. A careful examination at the end of thirty days is made to show that no diseased hairs have escaped. The cure requires about three months, and last year over 327 cases of cures followed this form of treatment.

Changes in the Nails After Acute Diseases.—These are perhaps more common, especially after infectious diseases, than would appear from the scattered references in the literature. Eger (*Berl. klin. Woch.*, May 15, 1905) describes three typical cases in which such changes were observed coming on during convalescence—these were multiple neuritis, typhoid and toxic gastro-enteritis. The effects are usually most marked on the thumbs, less so on the other

fingers and toes, and consist of white spots or transverse furrows, in front of which the nail is very brittle and scaly. This condition appears as the nail is pushed forward into view by the growth of the matrix, and is probably the result of defective nutrition during the course of the illness. The ridge which appears back of the groove is most likely due to a new proliferative process which begins as the general disease subsides, and expresses an effort to get rid of the dead portion of the nail.

OBSTETRICS AND GYNECOLOGY.

Uterine Fibroids.—J. WESLEY BOVÉE (*Journal A. M. A.*, May 27), says that his former publication on the appendages was the only publication in the literature on the subject except the report of a case by Hey Groves and some incidental references in other articles. He republishes here his own four cases and that of Dr. Groves. Such occurrences throw serious doubt on the theory of the efficiency of the removal of the appendages to produce atrophy of existing fibroids, which has been accepted to a considerable extent in Europe and in this country. The possibility of the growths having existed in an undeveloped state before the ablation is admitted, but not considered probable, as is also that of pelvic adhesions acting as a casual factor. That an infectious process of some degree or variety in the uterus may bring about this fibroid degeneration is deemed by the author as highly probable, though problematic. The only adequate theory he finds on which to base a cause for the development of fibroid after double salpingo-oophorectomy is that of the endarteritis noted by Benckeiser, but Bovée wishes the relation was clearer and better substantiated by cases. Such development of fibroids after castration is probably rare, and due to some infrequent cause like this endarteritis obliterans. In the absence of a better explanation he is therefore inclined to accept this one.

Two Cases of Congenital Anomalies of the Female Genital Tract.—G. M. BRILKNER (*St. Louis Med. Rev.*, May 27, 1905) reports two very interesting congenital anamolies of the genital tract, namely, an imperforate hymen causing hematometra and hematocolpos, and a case of atresia vaginæ totalis, with absence of the uterus. The author states that opinion is still divided as to whether or not the development of the hymen is of ectodermal origin. The hollowing-out process, which the solid Müllerian cord undergoes to form the hollow vagina does not extend to the hymen, which, in the normal instance, bears at some parts of its area, a perforation. This he considers as an extension or continuation of the procedure by which the Müllerian duct becomes converted into a series of hollow tubes—tubes, uterus and vagina.

Cæsarean Section in Myasthenia Gravis.—Myasthenia gravis is characterized by a variable degree of weakness of some or all of the voluntary muscles. After prolonged rest these muscles may respond to the will, but rapidly become exhausted again. Facial paresis and ophthalmoplegia give a characteistic appearance, there is no muscular atrophy or reaction of degeneration. The muscles most used are first affected. The sexes are equally attacked, the symptoms following some previous affection, such as influenza, the exanthemata, emotional excitement or over exertion, and in women, menstruation and pregnancy. Sensory symptoms are absent, the prognosis is grave, death occurring in most cases without any pathological structural changes. J. E. GEMMELL (*Jour. Obstet. and Gyn. Brit. Emp.*, April, 1905) has reported a case of pregnancy in which the patient showed marked weakness, being able only to walk but ten yards with a slow waddling gait. Knee jerks, ankle jerks, and plantar reflexes were normal. The lips could not be closed, attempts at smiling gave rise to the "nasal snarl" appearance. There was marked weakness of the palate muscles, thickened speech and occasional regurgitation of fluids through the nose. Sight and eye-reflexes were normal, but the orbital muscles shared in the general weakness. The symptoms became progressively worse as pregnancy advanced. Owing to weakness of the respiratory muscles increasing dyspnea became alarming, and Cæsarian section was resorted to shortly before term as the best procedure for a speedy termination of the pregnancy. The child was a healthy female. There was gradual improvement during the puerperium, but after six weeks' treatment with strychnine she was still quite helpless. Sections of uterine and rectus abdominis muscles showed no pathological conditions.

Vaginal Cleanliness.—The question of the preliminary cleansing of the vagina on the morbidity of the puerperium, is discussed by F. AHLFELD (*Zeitschr. f. Geb. u. Gyn.*, Vol 54, No. 1). He bases his conclusions on statistical and bacteriological investigations. Three per cent. solutions of cresol were employed for the irrigations, and he absolutely denies that any disinfectant effect can be obtained with the one per cent. solution. The average number of cases in which no rise of temperature occurred during the puerperium was usually about 68 per cent., while during the two years in which no irrigations were employed this number sank to about 53 per cent. In the operative cases, in which the cleansing was more complete and thorough, the number of cases in which no fever was present was even greater than the average. In a number of instances in which streptococci were demonstrated in the vagina before douching, a marked decrease in the quantity of growing organisms was noticed within a few hours after the irrigation had been given. The writer claims that if such a procedure is attended by the good results mentioned, there is no reason why it should not be employed, provided that it is not attended by any harmful results, and he does not believe that such occurs in the method advocated.

After Results of the Bossi Method.—This procedure has met with much opposition among a number of obstetricians and Bardeleben declaims very strongly against it, basing his statements on a series of six cases thus delivered. LICHTENSTEIN (*Archiv. f. Gyn.*, Vol. 75, No. 1) attacks this criticism, claiming that the number of cases was too small to serve as a criterion, that the resulting tears were not necessarily due to the instrument, and the after effects on the patients were severe because the tears were not immediately sutured as recommended. Lichtenstein had the opportunity of observing 18 cases, in which the Bossi instrument had been used. In all cases no tears resulted and the women were practically without symptoms. Of the remaining cases, four presented small tears; two, large ones, and the remaining one a bilateral laceration. Interference with conception and subsequent pregnancy could not be proven. No one, the author thinks, would question at the present time, the wisdom of employing forceps, the cranioclast, or perforation when necessity demands them, and similarly he thinks the time is

not far distant when a rapid means of mechanical dilatation will likewise be adopted. The main considerations remain—a definite indication, patience, time, and the proper instrument, such as the perfected dilator of Bossi, or that of de Seigneux.

EYE, EAR, NOSE AND THROAT.

Convergent Strabismus or Squint and the Modern Method of Treating It.—In a review of this subject T. A. Woodruff (*Chicago Med. Rec.*, June 17, 1905) states that in a large majority of cases the visual acuity of the eye that squints is defective at birth, and the brain, perceiving an indistinct and blurred image in its endeavor to use both eyes together, and get binocular single vision, suppresses the image in the squinting eye. The defective eye, thus left to its own resources, has a tendency to deviate from the primary position. From this fact alone one can see the necessity of beginning treatment in the first stages, if a successful issue is desired. It is during the developmental stage of the visual apparatus that much good can be accomplished in remedying the defect and getting parallelism of the visual axes, and it is during this stage that a large proportion of the cases can be cured without the necessity of submitting to operative procedure. The successful treatment of convergent squint depends upon several factors: (1) The beginning of treatment in the earliest stage; (2) the restoration of binocular vision; (3) the improvement of the visual acuity in one or both eyes and correction of the hypermetropia, thereby relieving the accommodation and reducing the excess of convergence; (4) the development of the power of fusion; (5) the establishment of binocular single vision. The accomplishment of these can be best obtained by means of the following: (1) The correction of errors of refraction and improvement of vision; (2) the education of binocular single vision by means of the stereoscope and the amblyoscope before the fifth year, and (3) operative measures. If the deviation is not more than 20 degrees, a free tenotomy of one internal rectus or advancement of one external rectus without tenotomy of the internus is usually sufficient. Where the convergence exceeds 20 degrees an advancement of the external rectus with tenotomy of the internal will probably be necessary.

The Value of Protargol in the Treatment of Gonorrheal Conjunctivitis.—On account of the destructive action the gonococcus exerts upon the eye, not only in the infant, but also in the adult, efforts have been made from time to time to secure a thoroughly reliable and efficient germicide which, in the hands of all practitioners, can be used with absolute safety. F. C. Hotz (*Chicago Med. Rec.*, April, 1905) recommends protargol, which, while possessing almost as great germicidal properties as silver nitrate, is free from the undesirable properties of the latter. He recommends a 20 per cent. solution as being most efficient. In order to obtain a perfect and thorough contact of the solution with every part of the inflamed conjunctiva the author saturates the cotton of an applicator with the solution, lifts the upper lid from the eyeball, slips the applicator between the lid and the eyeball, to the retrotarsal fold, and passes it over this fold from the outer to the inner canthus and back several times, thus, as it were, rubbing the protargol thoroughly into the conjunctiva. Another application is then used to treat the lower fornix and palpebral conjunctiva in the same way. The 20 per cent. solution is applied twice daily until the discharge is greatly reduced, has lost its purulent character and contains no more cocci. During the intervals between the applications the lids should be cleansed as often as necessary to prevent the discharge from crusting up the lid margins. Fresh solutions only should be used. This treatment is so simple and safe that any physician can carry it out, and therefore it is to be hoped that it will be adopted by the practitioner who sees the purulent ophthalmia of infants in the early stage more frequently than the specialist, and therefore is in a position to rescue many a child from blindness by the early and proper treatment.

Radiotherapy in Trachoma.—At the beginning of this year Cohn, of Breslau, reported seven cases of trachoma and follicular conjunctivitis treated successfull, by radium, the action of which he defined as "cito, tuto et jucunde." Selenevsky (*Roussky Varach*, May 14, 1905) finds a theoretical basis for the success obtained, inasmuch as it is assured by several investigators that the beneficial effect of radium on malignant growths is due to its power to decompose the lecithin which forms a substantial element of these growths. As the granulations of trachoma also contain a certain percentage of this substance the effect thereon of radium becomes intelligible. The author picked out seven trachomatous cases of a most pronounced character; the amount of radium used was at first 1 mg., and later 10 mg.; time of exposure five to ten minutes. The tube containing the radium was simply applied over the area treated and slowly moved about without touching the surface. The results were really astonishing: Five of the seven eyes were entirely cured, the other two are in a fair way of becoming so. The absorption of the granules was not accompanied by any untoward effect. The number of sittings varied from eight to fourteen. The author firmly believes that even in cases where the granules are extensive, good results can be obtained with radium, and that the treatment when properly conducted is perfectly harmless.

The Operative Treatment of Empyema of the Antrum of Highmore.—Otto T. Freer (*Chicago Med. Rec.*, July, 1905), after carefully reviewing the Küster operation through the facial wall; the Maiborn-Cooper operation, through the alveolar process; the Caldwell-Luc operation, through the nasal wall; the Mikulicz operation, under the inferior turbinate, and the operation through the middle meatus for empyema of the antrum of Highmore, considers that for the acute, subacute and milder chronic cases the internasal operation through the middle meatus is undoubtedly the best method, for it is easy of performance, inflicts but trifling injury, leaves the nasal interior practically intact and avoids the formidable operation through the facial walls. When the suppuration is marked with much foul discharge, or where the long duration of the disease leads to a suspicion of marked degeneration of the mucous lining of the antrum, the nasal removal of nearly the entire nasal wall is indicated, these being the operations of Rethi and Clavue. These operations the author considers that in the great majority of cases result in a cure and does everything for the patient that may be obtained from even the most radical Caldwell-Luc procedure, and with far less traumatism. It is no bar to a later operation through the facial wall, should it become necessary, and has the advantage that it represents the last and most advantageous step of the Caldwell-Luc operation, without its preliminary mutilation of the facial wall and mouth

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RECENT THERAPEUTIC APPLICATIONS OF SEA-WATER.

FROM time immemorial the philosophic mind has sought to penetrate the manifold mysteries of the deep. As one by one its living treasures have come within the close scrutiny of science, the boundless ocean begins to be recognized as the cradle of life, as the original source of the vast organic hierarchy of the earth. In the countless eons during which the sea was the sole environment of protoplasm, there must have developed an intimate and causal relationship between the physical and chemical characteristics of the sea-water and the complex constitution of the primary physical basis of life. Only within the last few years have these relationships been carefully studied, and the results, taken in connection with certain familiar clinical experiences, suggest a rich mine of possibilities in the healing art.

That sea-bathing has a unique therapeutic value in many morbid conditions has been abundantly demonstrated. Very little, however, has been known about the manner in which a dip in the ocean has a favorable effect on the organism. There is practically no cutaneous absorption of any of the saline constituents of the water. The good effects have been attributed to the physical action of the waves, the exercise, the fresh air with its large content in ozone, and the force of the winds. An actual investigation of the effect of sea-bathing and sea-climate upon metabolism has been made by A. Loewy and F. Müller (*Pflüger's Archiv*, July 9, 1904). They found that west winds and an increased force of the waves augment the bodily metabolism. The stimulation of the latter goes hand in hand with the stimulation of appetite, digestion, and psychic functions, and is of reflex origin, the stimuli being various physical factors, such as lower temperature, movements of the air, etc. In the light of other recent researches on the effects of the internal administration of sea-water, it is quite probable that part of the favorable effects of ocean-bathing is to be attributed to the water that is occasionally swallowed.

There is sufficient evidence at hand to support the belief that sea-water has active therapeutic virtues and that these are due to its chemical composition. There has been a nebulous idea in the minds of the laity that skin diseases are favorably influenced by sea-bathing. This conclusion has been crystallized in the observations of R. Abrahams (MEDICAL NEWS, March 26, 1904), who reports the good and prompt effects of a course of sea-baths on many forms of chronic cutaneous disease, particularly pityriasis versicolor, herpes tonsurans, chronic eczema, and pruritus senilis. Since some of these conditions are of parasitic origin, one can readily associate the good effects with the antiseptic qualities of the water.

That sea-water actually possesses germicidal power has been proved bacteriologically and clinically. In the gynecological service of Dr. Leblond at Saint-Lazare, M. Legourd (*Report de Therap.*, Feb., 1905) has discovered a valuable antiseptic power in sea-water, which has undergone electrolysis, and which is termed "hermetin." It is non-toxic and neutral, and contains oxygenated compounds of chlorine in a nascent state. It has produced favorable results in the treatment of affections of the vulva, vagina, and uterus.

Within the past few years the fact has been definitely established that under no other conditions are the various lesions of surgical tuberculosis so favorably influenced as by a residence at the seashore. That the beneficial effects are due not simply to the pure air is proved by the fact that these cases do not get along so well in the country. That the saline constituents of the

atmospheric moisture are responsible for this curative power appears to be indicated by the following interesting experiences.

MM. Robert-Simon and René Quinton (*Gazette des Hopitaux*, June 22, 1905) report their results in the treatment of eighteen cases of tuberculosis by means of subcutaneous injections of sea-water. The latter was made isotonic with the blood, *i.e.*, having the same saline concentration. This was effected by mixing 83 parts of Atlantic sea-water with 190 parts of pure drinking water. The freezing point of the mixture is the same as that of the blood—0.57°. Of the 18 cases treated, 14 were pulmonary tuberculosis. The treatment consisted in the injection, every three or four days, of 100 to 300 cubic centimeters of the above solution. In three cases no benefit was observed. In the remaining fifteen marked improvement was noted. The cough, expectoration, and night sweats diminished or disappeared entirely, sleep returned, and the appetite improved. In seven cases of pulmonary tuberculosis in the first stage, after from one to three months of treatment, there was not only a return to the normal respiratory rhythm, but also a more or less complete disappearance of the subcrepitant and crepitant râles. In three cases presenting themselves during the second stage of this disease, the treatment brought about a marked diminution in the number of moist râles, and in the expectoration. Even in the advanced stage of the disease the subcutaneous injections were followed by good effects. There were noted a total or partial healing of cavities, and a suppression of hemorrhages. One case of lupus of the nose was considerably benefited. Out of three cases of tuberculous glands, one was improved. An increase in weight was observed in all the cases that were otherwise benefited. These results are of no little interest and justify a more extensive trial of this novel method of treatment. This is also warranted on other grounds that are not purely theoretical.

In speculating upon the manner in which the injections of sea-water thus favorably affect the tuberculous process, one would naturally first think of the sodium chloride and attribute the good effects to this alone. The physiological relations of common salt have not yet been entirely worked out. Yet one of the most important discoveries recently recorded in the physiology of this substance concerns its relation to the mechanism of immunity. R. Turró and A. Pi y Suner (*Journal de Physiol.*, Jan. 15, 1905) found that the injection of large doses of saline solution into rabbits increases their resistance to the infections of malignant edema and the streptococcus. This effect is attributed to the fact that the saline solution dissolves a large amount of alexines out of the protoplasm of the cells, and adds it to the bodily fluids, thus increasing their bactericidal power. The degree of immunity depends principally upon the bacteriolytic power of the cells and humors, and this power is directly in proportion to the degree of solubility of the active substances. If a tissue contains enzymes that are but slightly soluble, its defensive power is diminished. If it is easily coagulated the defensive power is destroyed and the organism is helpless. The organism is infected by virtue of the coagulability of its plasmas, and resists infection by virtue of their solubility.

By applying the above results to the explanation of the curative value of sea-water in tuberculosis one may assume that the sodium chloride enables the alexines to be dissolved out of the cells, thus increasing the resistance of the individual.

Another explanation of the good effects of the saline injection may be gleaned from the researches of W. Ercklentz (*Zeitsch. f. klin. Med.*, Vol. 48, No. 3). This observer studied the effect of saline infusions upon the elimination of toxic substances from the organism. A number of rabbits were given subcutaneous injections of the minimal lethal doses of anilin, strychnine, arsenic, ricin, and cantharidin. As soon as the toxic symptoms appeared an intravenous saline infusion was given, with the result that the elimination of the poison was hastened. This result was attributed to an increased diuresis.

Not only laboratory experiments, but also clinical observations, attest the value of normal salt solution in various toxic conditions. H. F. Williams (Medical News, April 25, 1903) has reviewed this phase of the subject and has reported the good results he has himself obtained. Among the various diseases in which the intravenous or subcutaneous injection of normal salt solution has been of value are: Typhoid fever, pneumonia, dysentery, puerperal eclampsia, peritonitis, septicemia, uremia, ptomain poisoning, delirium tremens, acute digestive disorders,

cholera infantum, and other forms of toxemia. In connection with the reputed success of sea-water injections in tuberculosis, one case reported by Thompson is of interest. It was that of a tuberculous woman in whom persistent vomiting was relieved, after fruitless attempts with numerous drugs, by copious subcutaneous injections of salt water.

The expression, normal salt solution, has undergone within the past few years a definite evolution. At first .7 of one per cent. was considered to be the proper concentration of normal salt solution, but later the figure was properly raised to .9 of one per cent. Yet it is questionable whether this represents the solution which is most favorable to the physiological efficiency of the tissues. Thus Ringer's solution, containing, besides sodium chloride, other salts, notably calcium chloride, represents more nearly the normal physiological environment of the cells. In fact, as recent researches have shown, a pure solution of sodium chloride is relatively toxic to the bodily units. Thus Jacques Loeb (*Pflüger's Archiv,* March 28, 1905) has shown that the recently fertilized egg of *Fundulus* develops both in distilled water and in sea-water, but if brought into a salt solution having the same concentration in which salt is present in sea-water it quickly dies. But if to the salt water be added a small quantity of a salt of a bivalent metal, even such poisonous compounds as $BaCl_2$, $ZnSO_4$, etc., the latter will allow the embryo to develop. The young *Fundulus,* which has just hatched from the egg, can live for quite a long time in distilled water or in sea-water, but it will quickly die in a pure solution of common salt. This toxic action may be inhibited by the addition of $CaCl_2+KCl$. Either of these alone is not sufficient for this purpose.

This and other researches of Loeb, and the investigations of Matthews, Fischer and others, have shown that the solution which is most favorable to the life of the tissues is one which contains a number of salts, and these in the same concentration in which they exist in sea-water. The excess, deficiency or removal of one or more of these salts disturbs the equilibrium of the solution, which becomes toxic for the animal cell. The practical application of this fact is obvious. The normal salt solution of the future will be one having practically the same composition as sea-water, if not sea-water itself.

It is easy to explain the reason for this predilection of the animal cell for an environment having the same saline content and concentration as the water of the ocean. During the dawn of life all cells lived amid this environment, and the chemical and physical structure of protoplasm became adapted to the chemical and physical characteristics of the surrounding medium. In spite of the enormous lapse of time, and the complex elaboration of the simple protoplasmic units into the higher animal forms, the former still retain the ingrained habits of their primitive life.

INJURIES TO THE SPINAL CORD.

Severe traumatisms to the spinal cord, from simple shock to complete severance, are daily becoming more frequent. A broken back was once a rarity, and considered perforce to be immediately fatal; to-day it is almost a commonplace, and while not deprived of its most distressingly serious nature, yet its careful treatment may insure a high degree of comfort to the sufferer.

The occasion does not permit of a complete summary of the present attitude toward the minor and major grades of traumatic injury to the spinal cord, yet certain facts have of recent years been brought to the fore which might be advantageously discussed.

Severe injuries, as fracture or dislocation in the cervical region, have been found to be almost universally extremely grave. If death does not immediately follow the accident, the resultant hemorrhage, inflammation or redisplacement is usually fatal.

A strikingly unique injury is reported by James A. Kelly (*Annals of Surgery,* August, 1905), in which there was a forward dislocation of the atlas with recovery. The factor that saved this patient's life was a coincident fracture of the odontoid process of the axis, which, being carried forward by the transverse ligament, prevented the transfixion of the medulla. It is further noteworthy that, notwithstanding the verification of the diagnosis by excellent X-ray pictures, no pressure symptoms developed for a long time after the injury, and that the patient was able to take up his work as a laborer without distress, in spite of a permanent change in the position of head and neck.

From another point of view serious difficulties in definite diagnosis of severe cord injuries are emphasized by the studies of A. Fickler (*Deutsche Zeitschrift für Nervenheilkunde,* Vol.

29, Heft 102), who shows that in lower animals following experimental traumatisms, applied directly to the exposed spinal cord, not as in the experiments of Schmaus, Kirchgässer and others who made crushing blows on the outside of the vertebral column, there may be a true motor paralysis below the site of application of the trauma without any injury to the cord that can be macroscopically or microscopically demonstrated.

Such paralysis might be temporary only. The partial protection afforded by the muscles, spinal column, veins and fatty tissue, together with the dura is considerable. The same clinical picture can be produced experimentally in animals. The concussion imparted to the cord is a swinging movement. The paralysis is not the result merely of the concussion, but is the result of the mildest form of contusion of the cord; the resulting total paralysis, and the rapid recovery from the same are to be explained on the basis of variations in the axis cylinder, and not of molecular alterations. The lesion in the cord is circumscribed, and more marked at the point of contrecoup than at the point of application of violence. If the place of contrecoup is at the foramen magnum, then a lesion of the cord does not occur.

Apart from the localities of coup and contrecoup, the extent of contusion is also determined by the varying consistency of the cord itself. The motion imparted to the cord by a blow is transmitted chiefly in the direction of the blow through the cord, losing in intensity as it proceeds from the point of impact; small waves also start medially from this point; the amount of contusion is proportional to the degree of trauma, the distance from its point of application and the resistance offered by the nervous tissue elements. The least resistant tissue is the nervous tissue; the blood vessels are the most resistant. Only in the case of opening up of the central canal does a flow of lymph play a destructive rôle. Central hemorrhage occurs only with a damage of the nervous tissue, and only when the central veins are in the direction of the line of injury. Thrombosis has little to do with the genesis of traumatic lesions of the cord. The vascular changes appear to cause only late forms of spinal apoplexy.

In view of the recent striking cases of possible regeneration after cord injury, as reported by Harte and Fowler, the result of Fickler's studies of the process of regeneration in the spinal cord is of more than passing moment. He says that the regenerative phenomena following experimental lesions of the cord in animals are not as marked as those following compression of the cord in human beings. Section of the white substance between the anterior horns and the periphery is followed by regeneration of nerve fibers above and below the plane of section. A regeneration of ganglion cells in the cord has not yet been observed. Regeneration of the nerve fibers occurs in many diseases of the cord; whether the disease has already run its course or whether it is slowly developing; it occurs in traumatisms, compressions, syringomyelia and in transverse and disseminated myelitis. It does not occur in the columnar degenerations and in multiple sclerosis.

In order that regeneration may occur, it is necessary that the ganglion cell shall be intact. The first evidence of regeneration is seen one week after the section, and the process advances slowly. Only a comparatively small number of fibers are restored. The functional result is not a very considerable one. The best conditions for a restoration of function in the anterior part of the cord are afforded by compression which, leaves intact the central veins and the general configuration of the cord. A regeneration proceeding from the compression of the posterior roots has not yet been found, and probably does not occur, since the cause of injury of the cord is usually a caries of the vertebræ, which causes tuberculous ulceration of the ganglia of the posterior roots, in which case no regeneration can occur.

ECHOES AND NEWS.

NEW YORK.

New York and New England Association of Railway Surgeons.—The fifteenth annual meeting of this Association will be held at the Academy of Medicine, New York City, November 17 and 18, 1905, under the presidency of Dr. G. P. Conn, of Concord, N. H. One half day of the meeting will be devoted to a symposium on "Injuries to the Head and Spine." Noted surgeons will take part in the discussion. A cordial invitation is extended to the profession.

Medical Department of Fordham University.—The new medical department of this institution will open on September 28, with the following faculty: Anatomy, George A. Leitner; physiology and hygiene, E. Franklin Smith; materia medica and theraputics, Thomas J. Dunn and James N. Butler; chemistry and physics, taught at St. John's College; obstetrics and gynecology, John Aspell and George M. Edebohls; neurology and historical medicine, James J. Walsh. As only first year work is to be undertaken during the present session the full roster of professors is withheld for the time being. Dr. James N. Butler is Dean of the Faculty.

PHILADELPHIA.

Smallpox Epidemic.—Orwin, Pa., a small village near Pottsville, is now suffering with an epidemic of smallpox. The court of the last-named place has appointed Isaac Brown sanitary agent of Porter township, where the disease runs rife.

Enteric Fever Designated as Contagious.—Acting in accordance with the decision reached by the health experts at Washington, D. C., the Bureau of Health will hereafter classify typhoid fever among the contagious maladies. While the houses in which such diseases occur will not be placarded it is to be hoped the mere classification will impress the caretakers of the patient sufficiently to prevent its spread. Perhaps then the mothers and others caring for typhoid patients will better observe the rules of cleanliness and will institute disinfection and fumigation.

Pathogenic Bacteria Found in the Conduits Connected With the Filter Plants.—In a recent letter to the Mayor, Major Gillette, chairman of the commission of experts, pointed out that the daily reports made of the filter during the construction of the conduits show that the *Bacillus coli communis* was found in one place. The writer suggested that the conduits be pumped out in order to determine whether or not the bacteria passed through the filter. It is estimated that in order to accomplish this work four months' time and between $35,000 and $40,000 would be required.

Philadelphia Physicians to Attend the Tuberculosis Congress.—The steamer St. Louis, sailing on September 16th, will have on board Drs. Flick, Walsh, McCarthy and Ravenel; this quartet will attend the Third International Congress on Tubeculosis which will be held in Paris, October 2d to the 7th. Dr. Flick will read one paper on the "Prognosis of Tuberculosis" and another on the "Work of the Phipp's Institute." Dr. Walsh will speak of the "Work of the White Haven Sanitarium" and will read a paper on the "Kidneys in Tuberculosis." Dr. McCarthy will read a paper on the "Changes in the Brain and Nervous System in Tuberculosis." Dr. Ravenel is the American reporter of the Congress.

Indefinite Medical Terms Not Acceptable.—Acting in accordance with the new State law passed by the last Legislature the Pottsville Board of Health will see to it that the law is enforced in its realm and that if any physician fails to abide by it he will be punished. This Board of Health has determined that no undertaker will be given a burial permit who holds a certificate of death with such terms as "heart disease," "accident," "kidney disease," "blood poisoning," "breaking down," as causes of death. If such terms can be avoided and the definite cause of death be given statistics can then be compiled which will be of great value to the scientific medical man. This, however, is not the only advantage of the edict. It will insure an exact diagnosis from the physician who makes visit after visit without studying his cases sufficiently to give him the faintest clue to the nature of the disease present. As matters stand he finds it much easier to flatter the family and concoct some tale which will satisfy them.

Crusade Against Malpractitioners.—The postal inspectators have begun a war upon fakers and malpractitioners and have already held several under bail to wait trial. Inspector Malone has communicated with various "remedy companies" and "confidential doctors," the replies to these letters will be held as evidence against the prisoners. Among the arrested are Thomas Wallace, alias Dr. White, 129 North Ninth Street; Mrs. J. Bright, alias "Dr. Revere," 1102 Mt. Vernon Street; Julius Neblau, alias "Dr. Gordon," "Dr. French," "Dr. Neblau." Of the last named individual Mrs. Bell formerly employed by Neblau testified he was "doctor" anything and anybody as the request might have been. It was she who prepared a registered letter designed to capture Neblau. Coroner Dugan, who carried on a similar campaign against these people last year is now working in conjunction with the postal inspectors. He said that he alone is powerless to attack the fakers, because they do not come under his jurisdiction until they are responsible for some death.

Medical Inspector's Duty.—The systematic work of each school inspector has been clearly defined. He will make daily visits to schools allotted to him and inspect pupils that are set aside by the principal as bearing evidence of being ill. Each day he will examine and make a record of all the pupils, whether ill or not, in one school. This he will continue until all the pupils in his district are examined. He will exclude from school every child suffering from acute disease, whether contagious or not, any form of disease that may be a menace to other children, any form of disease of sufficient gravity to impede the work of the child, and any pupil not presenting evidence of successful vaccination, notwithstanding the certificate the pupil may hold. When a child has been excluded from school the inspector shall call at the home to determine whether or not the pupil is receiving medical attention; if not the case shall be reported to the chief medical inspector. As elicited from the systematic examination the actual number and percentage of children suffering with the following diseases shall be reported to the chief medical inspector: Myopia, hyperopia, strabismus, astigmatism; defects of hearing; spinal curvature, flat foot; acute and epidemic conjunctivitis, obstruction of the lacrymal duct, trachoma; diphtheria, tonsillitis, adenoids; impetigo, eruptions, itch, eczema; phthisis, asthma, bronchitis, rickets, scurvy, scabies or parasitic diseases of the scalp.

Program of Meeting of the Medical Society of the State of Pennsylvania.—The regular annual meeting will be held at Scranton on September 26 to 28, 1905. The morning session of the first day will be devoted to the reports of officers, committees, etc., which will be followed by the program as given below. "Address in Medicine," by S. Solis Cohen, Philadelphia. "The Diagnosis of Pneumonia and Empyema in Children," by Alfred Hand, of Philadelphia; "The Adaptation of the Public to the Principles and Practice of the Prevention of Tuberculosis," by Howard S. Anders, of Philadelphia; "The Diagnosis of Incipient Tuberculosis," by George W. Norris, of Philadelphia; "The Sanatorium Treatment of Tuberculosis," by George A. Kolb, of Erie; "Open Air vs. Confinement in the Treatment of Bone Tuberculosis," by H. Augustus Wilson, of Philadelphia. "Address in Surgery," by Jonathan M. Wainwright, of Scranton; "The Results of Surgical Treatment in Exophthalmic Goiter," by B. Farquhar Curtis, of New York; "Observations on Cancer of the Head and Neck With an Analysis of 110 Operative Cases," by George W. Crile, of Cleveland, Ohio; "Focal Diagnosis of Operable Tumors of the Cerebrum," by Charles K. Mills, of Philadelphia; "Surgery in Relation to Operable Lesions of the Cerebrum," by Charles H. Frazier, of Philadelphia; "The Treat-

of Trifacial Neuralgia by Complete Avulsion of the Peripheral Branches of the Trigeminal Nerve," by Ernest La Place, of Philadelphia; "The Essentials of Successful Roentgen Therapy," by Charles Lester Leonard, of Philadelphia; "The Adjustment of Radiation for Various Physiological Effects," by Russell H. Boggs, of Pittsburg.

Second Day.—"Address in Neurology," by E. E. Mayer, of Pittsburg; "Herpes Zoster Exophthalmicus," by Edward Stieren, of Pittsburg; "The Practical Value of Some Old Remedies," by John V. Shoemaker, of Philadelphia; "Some Color Comparisons in Medicine," by Henry E. Wetherill, of Philadelphia; "Insanity in the Aged," by Charles W. Burr, of Philadelphia; "Report of Diaphragmatic Hernia with Complete Extrusion of Stomach and Spleen," by J. Bruce McCreary, of Shippensburg; "Address in Otology," by Michael V. Ball, of Warren; "Thyrotomy vs. Laryngectomy, Notes on the Frequently Malign Nature of Chronic Hoarseness," by Chevalier Q. Jackson, of Pittsburg; "The Present Treatment of Squint," by William Campbell Posey, of Philadelphia; "The Mastoid Operation," by Edward B. Dench, of New York City; "Mastoiditis, Its Importance in Practice," by S. Makuen Smith, of Philadelphia; "The Subcutaneous Resection of the Septum," by William L. Ballenger, of Chicago; "Acute and Chronic Inflammation of the Accessory Sinuses of the Nose," by W. G. B. Harland, of Philadelphia; "Can the Deaf Child Be Taught to Hear," by G. Hudson Makuen, of Philadelphia; 'Address in Hygiene and State Medicine," by George W. Wagoner, of Johnstown; "Protective Inoculation Against Typhoid Fever," by H. Bergey, of Philadelphia; "Typhoid Fever," by Seneca Egbert, of Philadelphia; "Pernicious Anemia," by J. A. Lichty, of Pittsburg; "Chronic Rheumatism," by Charles F. Painter, of Boston; "The Differential Value of Blood Cultures," by David L. Edsall, of Philadelphia; "Address in Obstetrics," by Ella B. Everett, of Philadelphia; "Estopic Gestation," by Charles P. Noble, of Philadelphia; "Uterine Curettage—Its Indications and Contradictions—Its Technic and the Complications Which May Attend and Follow the Procedure and Their Proper Treatment," by E. E. Montgomery, of Philadelphia; "Pseudomyoma Peritonei," by Barton Cooke Hirst, of Philadelphia; "The Significance and Management of Chronic Uterine Hemorrhage," by George E. Shoemaker, of Philadelphia; "The Technic Employed in the Last One Hundred Laparotomies with a View of Restricting the Employment of Drainage," by L. Jay Hammond, of Philadelphia; "Movable Kidney," by H. D. Beyea, of Philadelphia; "Some remarks on Pulmonary Embolism, Secondary Abcesses, Toxemia, Infectious Jaundice, Intestinal Obstruction and Secondary Pertitionitis as Complications of Appendicitis," by John B. Deaver, of Philadelphia. "Appendicitis—Treatment of Septic Peritonitis," by Charles H. Ott, of Sayre; "The Management of Pus Cases in Abdominal Surgery," by Reed Burns, of Scranton; "Drainage in Septic and Infectious Peritonitis," by Joseph Price, of Philadelphia.

Third Day.—"The Office Treatment of Hemorrhoids," by W. M. Beach, of Pittsburg; "Report of a Case of Acute Myelitis of Toxic Origin," by Herman B. Allyn, of Philadelphia; "Three Cases of Meningocele that Recovered," by George W. Guthrie, of Wilkesbarre; "Additional Observations upon the Treatment of Empyema, with Special Reference to Irrigation of the Pleural Cavities," by P. Y. Eisenberg, of Norristown; "Notes on the Diagnosis of Acute Hemorrhagic Peritonitis," by J. C. Wilson, of Philadelphia; "Clinical Examination of the Feces," by J. Dutton Steele, of Philadelphia; "Brain Abcess with Sudden Exophthalmos and Blindness, Death; Autopsy;" by Edward B. Heckel, of Pittsburg; "The Early Recognition and Treatment of Intestinal Obstruction with Report of Some Unique Cases," by J. C. Bloodgood, of Baltimore; "Wandering Gallstones," by William L. Estes, of South Bethlehem; "Surgery of the Gallbladder and Ducts," by J. M. Baldy, of Philadelphia; "The Direct Fixation of Fractures," by John B. Roberts, of Philadelphia; "Fractures of the Head of the Radius," by T. Turner Thomas, of Philadelphia; "The Question of Lowered Gastric Secretion," by Charles G. Stockton, of Buffalo; "The Surgery of Non-Malignant Diseases of the Stomach," by John B. Murphy, of Chicago; "The Surgical Treatment of Cardiospasm," by Edward Martin, of Philadelphia; "The Treatment of Benign Stenosis of the Pylorus and Duodenum Resulting from Spasm and Scar Tissue and from Abdominal Adhesions," by Albert Bernheim, of Philadelphia; "The Symptomatology and Diagnosis of Cancer of the Stomach," by John J. Gilbride, of Philadelphia; "Gastroenterostomy—Its Indications and Its Technic," by William L. Rodman, of Philadelphia;; "The Conservative Treatment of Hypertrophied Prostate," by H. M. Christian, of Philadelphia.

CHICAGO.

Condemnation and Destruction of Food.—The food inspectors condemned and destroyed 88,677 pounds of meat at the Union Stockyards, including three hogs bearing the Government inspection tag. Within the loop district, the inspectors condemned and destroyed a large quantity of immature veal, rotten poultry, berries and other fruit, and 121 barrels of spoiled fish, including three barrels which were being delivered to a curing and smoking-plant.

Typhoid Fever.—Although there were twelve deaths from typhoid fever, according to the *Bulletin of the Health Department* for the week ended August 26, the laboratory examinations of suspected cases for physicians warrant the anticipation of a decline of this mortality. Out of 72 examinations, only 18 gave positive reactions to the Widal test. The disease is most prevalent in the Southeastern part of the city where the water supply is inadequate.

Health Bureau in Schools.—With a view to safeguarding children against the spread of disease and at the same time improving the sanitation of houses in the congested quarters of the city, the Board of Education of Chicago is planning the establishment of a Bureau of Health. Many of the trustees heartily favor the plan, and if enough votes can be secured in the Board, the scheme will be put to a practical test as soon as the public schools are opened for the fall term. The plan is to have the schools visited by competent medical inspectors, with a view to learning from the school children of cases of illness in their homes. As soon as information is obtained, the afflicted household will be visited, and every effort made to guard against spread of the disease and also to improve the sanitary conditions. Teachers will be requested to report all cases of illness to the Bureau and also the addresses of all houses which they have reason to know are not sanitary.

GENERAL.

The Healthy Soldier.—Out of a total of 242,183 officers and men in the British army, 183,598, or 758.1 per 1,000, were admitted to hospital in 1903, says the annual report of the Army Medical Department, issued June 10, 1905.

Only Two Cholera Cases at Hamburg.—Baron Bussche, German Chargé d'Affaires in this country, says an official telegram received from the foreign office in Berlin, states that only two cases of cholera have occured at Hamburg, and not sixty as reported.

Congress of Criminal Anthropology.—The sixth Congress of Criminal Anthropology will meet at Turin on April 28, 1906, under the presidency of Professor Lombroso. An exhibition of criminal anthropology will be held in connection with the Congress.

New Hospital for Epileptics at Moscow.—The town council of Moscow, says the *St. Petersburger Medicinische Wochenschrift*, has decided to erect at once an asylum for epileptics, for which a special fund of 700,000 rubles is at the council's disposition. The first instalment of the building will accommodate 150 patients.

Deaths of Eminent Foreign Medical Men.—The deaths of the following eminent foreign medical men are announced: Dr. Hyernaux, formerly professor of midwifery in the University of Brussels, at the age of 80 years; Dr. Josef von Metnitz, extraordinary professor of odontology in the University of Vienna, at the age of 43 years; Dr. Walter Flemming, formerly professor of anatomy in the University of Kiel, at the age of 62 years. His published researches relate to embryology and cell division.

Leprosy in Roumania.—Leprosy is said to be on the increase in Roumania. Till 1895 no special precautions were taken, the disease not being considered contagious. Since then, however, so many cases have been discovered that the authorities became alarmed, and the rebuilding of an ancient monastery at Arnota, on the sea-shore, for the interrment of lepers was resolved on. It is alleged that the prevalence of the disease has greatly increased in the districts through which the Russian forces passed in 1877-78.

Professor Goldwin Smith on Longevity.—Professor Goldwin Smith, who recently celebrated his eighty-second birthday at Toronto, when asked by a correspondent of the *Daily Chronicle* if he had any message to his fellow-men appropriate to the occasion, is reported to have delivered himself as follows: "I have the secret of longevity. I have never been abstemious, and have lived pretty much as I liked, but I have always observed moderation. In my youth in England I lived a very active life, following the hounds and mountain-climbing in Switzerland being my favorite recreations." *Brit. Med Jour.*

A Woman Professor of Anatomy.—Miss Florence R. Sabin has been appointed Associate Professor of Anatomy in the Johns Hopkins University. Her name is well known to anatomists by her work on the nervous system. Miss Sabin, it may be stated, is not the first woman who has been professor of anatomy. In the sixteenth century Alessandra Giovanni taught that subject at Bologna, and Anna Manzolini occupied a Chair of Anatomy in the same university in the middle of the eighteenth century. Maria Pettracina was Professor of Anatomy in the University of Ferrara toward the end of the same century. She was the author of several works on a subject which is exciting great interest at present, namely, the physical education of children.

International Congress of Anatomy.—The first International Congress of Anatomy has just been held at Geneva under the presidency of Professor Eternod. Five anatomical societies took part in the Congress, namely, the Anatomical Society of Great Britain and Ireland, the German Anatomische Gesellschaft, the Association of American Anatomists, the Unione Zoologica Italiana, and the French Association des Anatomistes Nearly two hundred representatives of anatomy, histology and embryology were present. The scientific proceedings were of the greatest interest to specialists, and the social entertainments, official and private, were on a generous scale. It was decided that the next meeting of the Congress should be held at Bordeaux, at Eastertide, 1906, under the presidency of Professor Viault.

International Medical Congress.—Final arrangements have been perfected for the trip of the American party to the International Medical Congress at Lisbon, next spring. The party will sail April 7 on the North German Lloyd steamer "König Albert," for Gibraltar, visiting Algerciras, Seville, Cordova, etc., spend a week in Lisbon during the Congress, returning to New York on Wednesday, May 9. This trip may be made comfortably in a first-class steamer both ways, all expenses paid, including board and lodging while in Lisbon, for $300. A number of side trips are being added, and tickets will be good returning through Europe, if desired, at a slightly increased cost. All those who contemplate the trip are cordially urged to make reservation with Dr. Chas. Wood Fassett, of St. Joseph, Mo., at once, in order to secure desirable berths on the steamer and good hotel accommodations.

Foreign University Intelligence.—Berlin: Dr. Heine has been recognized as privat-docent of otology.—Bologna: Dr. Canepele, of Rome, has been recognized as privat-docent of oto-laryngology.—Breslau: Dr. Göbel has been recognized as privat-docent of surgery.—Erlangen: Dr. Erwin Kreuter has been recognized as privat-docent of surgery.—Greifswald: Dr. Sobotta, of Würzburg, has declined the chair of anatomy.—Jena: A new clinic for nervous diseases has been erected in connection with the psychiatric clinic.—Pavia: Dr. Adelchi Negri has been recognized as privat-docent of general pathology.—Pisa: Dr. Agostino Bruno has been recognized as privat-docent of internal pathology.—Rome: Dr. Angelo Chiavaro has been recognized as privat-docent of odontology.—Tübingen: Dr. Harms has been recognized as privat-docent of ophthalmology.—Vienna: Dr. Gustav von Wunscheim has been recognized as privat-docent of odontology.

Embalming in Ancient Egypt.—A recent number of the *Revue des Deux Mondes* contains an article by Professor Lortet, of Lyons, in which recent discoveries in respect to embalming in ancient Egypt are described. More than seventy yards of cloth of a width of about 12 inches were used in wrapping a mummy. This cloth was impregnated with a resinous alkaline solution, to which Professor Lortet attributes the preservation of the tissues. Ten large jars, carefully stoppered, full of a yellowish powder, have been found in a tomb near Thebes. On analysis the powder was found to contain an aromatic resinous substance and a large proportion of sodium salts, with some sand and clay. The resinous substance is evidently an extract of various aromatic substances in which myrrh predominates. Cloth dipped in water in which some of this powder was dissolved presents the same appearance and odor as the cloth in which mummies are wrapped.—*Brit. Med. Jour.*

Noted Men Among the Suicides.—A writer in a London periodical has recently compiled a list of the men of noble birth and high station who within the past

century or so have ushered themselves out of the world. The list includes Prince Ludwig, of Austria, who slew himself a few years ago because of a love affair, and Sir Hector MacDonald, the hero of the Boer War, who killed himself in Paris rather than face disgrace, and there are many others; but the list does not include the host of Chinese officials who have committed *harakiri* in very recent times, and often under what would be considered elsewhere as very slight provocation. There is no country in the world where self-slaughter is so common as in China, or where it is regarded so lightly. Statistics on this particular subject are unreliable, but one authority on China estimates that over twenty-five thousand persons die by their own hands in that country every year. In India suicide among the wretched victims of the child-marriage system rolls up a great total every year. Among strange motives for suicide we may include that of Lieutenant Jovanovitch, of the Servian army, who killed himself because he was not allowed to share in the plot against King Alexander and Queen Draga. He had the same idea of "honor," probably, that led a young German officer recently to lay violent hands upon himself after he had been treated scornfully by his brother officers for not using his sword on a drunken private who had ventured to "insult his uniform" with some personalities.

Curious Facts About Suicide.—Says *Leslie's Weekly* on this subject: Professor William B. Bailey, of Yale, has brought out some interesting facts based on 29,344 cases of suicide, covering the period from 1897 to 1901. Using the 10,000 unit, he finds that 7,781 males and 2,219 females found life intolerable, and, despairing of mending, ended it. This leaves the ratio of cowardice 3½ to 1 in favor of feminine courage. Almost two-thirds of the suicides occurred between the ages of twenty and fifty. Curiously enough, there are more married than single suicides. While married men are more likely to take the plunge than married women, single, widowed and divorced women are more prone to kill themselves than unattached males. Business losses are more likely to drive people to suicide than ill-health, insanity, disappointment in love, or strong drink. Monday is the favorite day for the rash deed, while few take the step on Saturday. Professor Bailey's explanation is as follows: "For those who have endured throughout the week there is pay-day at hand, followed by a day of rest." Among the males Monday is preeminently a day for suicide. Females prefer Sunday to Monday. Religious excitement may have something to do with this, but nearly a third of the domestic troubles leading to suicide come on Sunday. More than one-fourth of the suicides from financial trouble and ill-health among females occur on Monday. They apparently lack the courage, in their weak or impoverished condition, to take up the struggle of a new week. Of 10,000 cases, 3,687 occurred in the twelve hours before noon. Beginning with midnight, there is a continuous increase until 6 P. M. The three hours from 6 to 9 P.M. show a falling off, while from 9 o'clock till midnight is the period of greatest frequency. Some years ago it was discovered that a large number of suicides wore congress gaiters. Just why was not exactly determined. There are many other curious features that call for comment and explanation.

Fever Crisis Reported to Be Passed.—Statements indicating that the crisis in the yellow fever situation of New Orleans has passed; that the campaign of science is meeting with unbounded success; and that the fever will be practically forgotten by frost, were printed last Friday over the signatures of the leaders in the campaign of eradication—Surgeon White, Presidents Kohnke and Souchon of the Boards of Health, Dr. Beverley Warner, Dr. Metz of Tulane University, and Chairman Janvier of the citizens' committee. Dr. White says: "The work begun by the city Board of Health and continued by the Marine Hospital Service has undoubtedly been effective in holding the infection in check. We may say without undue self-congratulation that the disease is being gradually worked out. It must be apparent, for the lists of cases and deaths, taken on the average, week by week, are growing steadily less." President Schwing, of the Louisiana Press Association, has issued an address to the newspapers of the State inviting a discussion of the question of Federal control of the quarantine, thereby making impossible in the future such conflicts as have occurred in the South this year. Vicksburg and Natchez, which had most stringent restrictions against infected points, have appealed to the Marine Hospital Service for a fumigation system in order to enable them to move goods. Two cases of fever have been reported at Pearlington, Miss., an important lumber point at the mouth of the Pearl River. Leading citizens have met here and formed the New Orleans Health Association, a permanent organization, with Charles Janvier as president. The new association will endeavor to further the establishment and equipment of a permanent isolation hospital, where fever cases will be taken, as they are at Havana, immediately after they enter this port. So strong is the sentiment in favor of the early completion of the water, sewage and drainage work, that plans are now being considered for an appeal to the Legislature to provide the money necessary for additional speed in construction.

Missouri Valley Medical Society.—This society held its annual meeting in Council Bluffs, Ia., on Thursday and Friday, August 24 and 25, with an attendance of one hundred. Dr. S. Grover Burnett, in his presidential address entitled "Oslerism Bearded; or, A Study of Age in Relation to Work," called attention to the fact that Dr. Geo. M. Beard was entitled to priority in suggesting the uselessness of man above forty years of age. Dr. Beard claims that those who have done their best thinking before forty do their best mental externalizing afterward. Beard has shown us that 70 per cent. of life's work is done by the forty-fifth year, and 80 per cent. is finished by the fiftieth year. Also that only 25 per cent. more actual work is accomplished from thirty to forty years of age than is done between forty and fifty years of age; thus, man's retirement at forty would mean a loss to the world of a sum equal to three-fourths of his work done from thirty to forty years of age, to say nothing of the auxiliary unfinished business accumulated before forty and requiring concentrated experience which comes after forty, to shape it into a thing of value. The last half of man's life is unquestionably the best and most favorable part of it; especially if he devotes the first half to thought. Faddism is the product of immature sentiment, which age and experience and careful investigation will always cure. Papers were read by Drs. Le Roy Crummer, A. C. Stokes, W. O. Bridges, A. P. Condon and J. P. Lord, of Omaha; Fenton B. Turck and W. F. Waugh, of Chicago; Daniel Morton, of St. Joseph; J. W. Kime, of Fort Dodge, Ia.; Herman E. Pearse and C. B. Hardin, of Kansas City; T. N. Bogart, of Excelsior Springs, Mo. On Thursday evening the society was entertained by the local profession at Lake Manawa. An amendment to the constitution was read, changing the annual meeting to the first week in September. The secretary's report showed a healthy condition of the society, 41 new members having been added during the year. The Buchanan County Medical Society extended an invitation to hold the next

semi-annual meeting in St. Joseph, in March, 1906, which was accepted. The election of officers for the ensuing year resulted as follows: President, Dr. John E. Summers, Jr., of Omaha; First Vice-President, Dr. C. H. Dewitt, of Glenwood, Ia.; Second Vice-President, Dr. C. B. Hardin, of Kansas City, Mo.; Treasurer, Dr. Donald Macrae, of Council Bluffs, reelected; Secretary, Dr. Chas. Wood Fassett, of St. Joseph, Mo., reelected.

Cumberland Valley Medical Association.—The doctors of Maryland and Pennsylvania, comprising the entire Cumberland Valley, met last week in annual convention at Mt. Holly Park. There was an attendance of about eighty. Dr. V. M. Reichard, of Maryland, presided and read an eloquent and scholarly address upon "The Position of the Medical Profession at the Present Day." The convention was opened with a cordial address by Major James Evelyn Pilcher, in which, on behalf of Cumberland County, he extended the heartiest of welcomes and placed the keys of Old Mother Cumberland at the disposition of the association. Dr. J. B. McCreary described the wonderful Shippensburg case of transposition of the internal organs, which has been referred to several times in the newspapers, and which is a unique case in medical annals. Dr. Charles F. Palmer, of Chambersburg, read an interesting paper upon "Our Relations to the World at Large," and Major Pilcher presented a memoir upon the "Medical Lessons of the Far East," in which he illustrated, by the success of the Japanese operations, the importance of state medicine and of the active participation in public affairs by physicians. It was one of the best papers ever read before the society. The scientific work of the day closed with a paper upon "The Influence of Eye Strain," by Dr. A. C. Maisch, of Hagerstown, Md. The meeting was then adjourned to the Holly Inn where at three o'clock a largely attended and elegant banquet was served, in the course of which delightful music was furnished by an orchestra composed of the daughters of Dr. W. T. Phillipy, of Carlisle. Major James Evelyn Pilcher was toastmaster and presided in his usual happy vein, while responses were given to the following toasts: "The Medical Man's Vacation," by Dr. J. Bruce McCreary, of Shippensburg; "The Terrapin and the Doctor," by Dr. Robert W. Ramsey, of Chambersburg; "The Ladies," by Dr. H. C. Devilbiss, of Chambersburg; "The Revised Code," by Dr. L. H. Keller, of Hagerstown; "Surgery in the Country," by Dr. V. M. Reichard, of Fairplay, Md.; "The Triumphs of Medicine," by Dr. J. B. Amberson, of Waynesboro; and "The Home Guard," by Dr. Harry A. Spangler, of Carlisle. The following officers were reported and unanimously elected for the coming year: President, Major James Evelyn Pilcher, of Carlisle; First Vice-President, Dr. H. P. F. Unger, of Mercersburg; Second Vice-President, Dr. A. C. Maisch, of Hagerstown; Third Vice-President, Dr. George C. Borst, of Newville; Secretary, Dr. J. J. Coffman, of Scotland; Assistant Secretaries, Drs. P. R. Koons, of Mechanicsburg; H. C. Devilbiss, of Chambersburg; T. C. R. Miller, of Mason-Dixon; Treasurer, Dr. J. J. Koser, of Shippensburg.

Fight Against Lead Poisons.—The International Labor Office of Basel (Switzerland), which was organized four years ago by the International Association for Labor Legislation, has invited an international competition for the prevention of lead poisoning, and offers a number of valuable prizes for treatises on this subject. This association was founded by persons advocating the legal protection of workmen, among whom were prominent statesmen and scholars of Europe. Sections of the association have been formed in the following countries: Austria, Belgium, France, Germany, Great Britain, Hungary, Italy, Netherlands and Switzerland. The International Labor Office is subsidized by the Governments of the following countries: United States, Belgium, France, Germany, Hungary, Italy, Luxemburg, Netherlands, Sweden and Switzerland. According to its rules the International Labor Office has to serve as a scientific organ and it has been entrusted with the task of preparing and publishing a bulletin, containing an account of all the new laws concerning the hygiene and safety of the working classes, including parliamentary reports, as well as discussions and resolutions of congresses, concerning the legal protection of labor. I.—The prizes offered are as follows: (1.) One prize of $1,200 for the best treatise on the prevention of lead poisoning in the operation of mining and milling lead ores or ores containing lead. (2.) One prize of $2,400 for the best treatise on the prevention of lead poisoning in smelting and refining works. (3.) Two prizes, viz.: One first of $600; one second of $360, for the best treatises on the prevention of lead poisoning in the chemical application of lead, as in white lead works, manufacture of other lead paints, of electric accumulators (storage batteries), etc. (4.) Four prizes, viz.: One of $360; one of $240; two of $180 each, for the best treatises on the prevention of lead poisoning in the trades of house, ship, coach-painting, interior decoration, varnishing and the like. (5.) Four prizes, viz.: One of $360; one of $240; two of $180 each, for the best treatises on the prevention of lead poisoning in those trades where raw and manufactured lead are consumed or handled on a large scale, as in type foundries and printing-offices. II.—Each treatise to contain a systematic review of the special causes giving rise to lead poisoning, in conjunction with a description of the various processes of manufacture, pointing out the dangers occasioned at every phase of procedure, including handling and transportation. Reference to be made also to the causes due to working at places in which a prolonged occupation is liable to affect the health, to want of cleanliness, lack of proper guidance and instructions, carelessness, poor and inadequate food, irrational way of living and unhealthy dwellings of the workmen. In connection with the statement of the causes of lead poisoning, measures for their prevention are to be proposed. III.—Substantial evidence should be given for the proposed preventives as regards their technical, hygienic and economical feasibility. IV.—The comparative injuriousness of the different phases of manufacture as well as of the conditions referred to in section II. must be demonstrated as far as possible by a properly graduated classification of the risk of lead poisoning, from the highest to the lowest degree. V.—In proposing new installations or alterations of the existing mode of operation, the probable increase or decrease of expenses incurred by the change should be approximately stated—*e. g.*, in proposing mechanical appliances to supersede manual labor the primary cost of these, as well as the increase of working expenses by depreciation, and interest on the capital invested would have to appear, as well as the saving of wages or other factors of economy—viz., the avoidance of fluctuations and changes in the working staff and, in consequence, the maintenance of a properly trained crew with a corresponding improvement of their capacity. VI.—It is desired that the treatises should promote the development of the present provisions of the various States by outlining or drafting legal or administrative regulations or suggestions to the proper authorities, aiming at the realization of the preventive measures proposed by the competitors. Short precepts against the danger of poisoning might also be given, preferably in a form

suited for posting in workshops, building grounds, etc. VII.—A clear and concise summary of the measures proposed by the competitors is to be given at the end of the treatise. VIII.—The papers may be written either in English, French or German. Already printed books cannot be taken into consideration by the jury. The ready manuscripts must be put in an envelope bearing only a motto, and lodged with the International Labor Office at Basel on or before the 31st December, 1905. The full name and address of the author should be stated under a separate sealed cover bearing on its outside the same motto as above. Contributions arriving later than the 31st December, 1905, will be excluded from the competition. IX.—By the award of a prize the International Labor Office is entitled to publish a treatise, leaving, however, its author the exclusive property; the office may also concede to the authors the right of publishing their treatises. Manuscripts which are not secured for publication will be returned to their authors. X.—In case the jury should not see fit to award the total sum of $6,480 reserved for the prizes, the remainder shall be employed upon recommendation of the jury by the International Association of Labor Legislation, for other purposes concerning the hygienic welfare of the working classes. All letters, inquiries and other matters pertaining to the present competition, are to be addressed to the International Labor Office, at Basel (Switzerland).

OBITUARY.

DR. SIEGFRIED MARTUS, of New York, a specialist in skin diseases, who had been connected with the staff at the Mount Sinai Hospital for fourteen years, died last Thursday, at the New York Hospital, from an operation for appendicitis. He was ill only a few days. He was born in Russia in 1862, and after receiving his education at Posen and in the University of Berlin came to this country. He was one of the experts in the X-ray department at Mount Sinai, medical adviser of the Hebrew Technical Institute, a member of the County Medical Society, the German Medical Society and several other organizations.

SOCIETY PROCEEDINGS.

MEDICAL SOCIETY OF THE COUNTY OF NEW YORK.

Regular Meeting, held May 22, 1905.

Treatment of Diarrhea in Children.—The scientific business of the evening consisted of a discussion of the summer diarrheas of children, which was begun by Dr. Joseph E. Winters, of New York, and participated in by prominent pediatrists from many cities. Dr. Winters said, in opening the discussion, that there is a confusion of terms with regar ' to summer diarrhea which sometimes makes this affection include dysentery. Diarrhea, however, never becomes dysentery, and never leads up to dysentery. Dysentery is a specific infectious disease. Both diseases may coexist in the same subject or diarrhea may so weaken an infant as to leave it open to attack by dysentery, but the diseases are absolutely distinct. The necessity for a review of notions with regard to treatment can be best realized from the fact that while there were about 2,700 deaths in Greater New York during the summer of 1903 from diarrhea, there were over 3,800 in 1904. Last summer was a more cool and salubrious season than that of 1903, and should naturally have been associated with a lessened instead of an increased mortality. This throws a shadow over science, and seems to indicate its hopelessness in the face of this serious condition.

Food Disorder.—Summer diarrhea is purely a food disorder, and is eminently preventable, yet it registers more deaths than any of the infections. It is evident there has been a gross mismanagement of the diet of infants in Greater New York. Barley water, rice water, egg water, and the like, has been substituted for milk in the feeding of infants till weakness and collapse have ensued with fatal termination. The first step in the treatment of diarrhea of infants must be the removal of the cause. This means that all irritant materials must be kept out of the dietary before the child falls sick, and then, after the illness has begun, they must be removed from the intestinal tract.

Necessity for Purgation.—In the folds of the intestinal tract curds of milk, the seeds of fruit, and other irritating material catch and excite inflammation. These must be removed before the irritative inflammation will subside. The best purgative is castor oil, given ice cold, and repeated if it is rejected after an hour. The only reason for the giving of opium must be not to stop the diarrhea, but to release the spasm which keeps the irritative material in certain parts of the digestive tract and causes this to surrender all septic matter. Any further source of irritation must be avoided, and consequently for twenty-four hours the infant must receive only water. Feeding during diarrhea is fatal; in young infants hot water, given by the bottle, will often relieve their discomfort. If there is temperature, cold water should be given, which will help to lower the temperature. Hot water, if given fifteen-drop doses on the tongue every hour, or oftener if necessary, checks vomiting when nothing else will accomplish that purpose.

Treatment of Convalescence.—If at the end of twenty-four hours the diarrhea has ceased, and there is no more vomiting, the patient may be given weaker food. Barley water and peptonized food should not be given to young children. They are eminently unphysiological. Proteid excess is fatal in the summer. On the other hand, the use of pernicious dextrinized cereals cannot but do harm. Milk is the only food resource in children under one year of age. For children under three months of age, the upper ounce of the cream of a quart bottle of milk which has stood for sixteen hours, kept on ice all the time, should be added to an ounce of water, and two tablespoonfuls of lime water. One ounce of this mixture may be given every four hours. Filtered, unboiled water should be used, and if at the end of twenty-four hours the child continues to improve, then an ounce of this food may be given every two hours.

Abuse of Water.—There was a time not so long since, when, if children did not take their food properly, they were not likely to obtain the amount of liquid necessary for their subsistence. Then came the realization of the necessity for water occasionally. Now there has come a tendency to exaggerate in this matter. Water, if given too frequently, especially on a weakened stomach, is not carried out of the stomach, and is apt to produce irritation and atony of that organ. Water should not be given oftener than every three hours, so as to enable the stomach to pass it on to the intestines, as no water is absorbed in the stomach itself.

Death-Rate in Older Children.—The anomalous death-rate of infants from diarrhea last summer was due to the unjustifiable use of cereals at a time when

nature had not supplied the digestive juices necessary for the proper preparation of such material. In older children the increase in the death-rate was due to the excessive use of animal broths. These are destitute of constructive elements, and are only stimulants. Beef juice should be interdicted whenever the stools become offensive, and whenever the nervous system is overstimulated by them. Vegetable proteids should be employed. Cereals check waste, and are indispensable in the second year of life. Gruels made with water and butter and salt are of excellent service, but should not be made with milk. Animal broths should not be administered at the same time with them, nor immediately after them.

Choice of Cereals.—The best cereals are, in their order, barley, imperial granum, rice, arrowroot, and then the others. Imperial granum and arrowroot should be cooked for three hours. Rice, as a rule, does not need to be cooked so long, neither does barley. If the child refuses to take the cereal food, then this should not be forced upon it. Hunger will usually compel the child to take food at the proper time during the second year, and as in adult life the disinclination for food is respected, so it should be in these children, whose feelings can be trusted to assert themselves. There need be no fear of the child allowing itself to become too weak for want of food, provided, always, that the food is nicely prepared and offered to it.

Chronic Diarrhea and Condensed Milk.—In chronic diarrhea Dr. Winters has obtained the best results by the use of condensed milk. He has found it hard to understand just why this has proved so beneficial. It is a matter of very definite experience, however, and the condensed milk regimen has not failed him once in years. Sometimes the effects produced seem almost miraculous. It is often hard after the child gets well to keep the mother from continuing the use of the kind of food that has proved so helpful. A change, however, must be made after a time, otherwise there will inevitably develop scurvy, or rachitis, or some of the deforming types of malnutrition. Gradually and surreptitiously cream must be added to the child's feedings of condensed milk, until finally it is all replaced by cream and milk.

Abuse of Irrigation.—Dr. Winters considers that irrigation of the bowels is a much-abused and overrated remedy, and an overused method of treatment. It produces distention, adds to the patient's discomfort, increases the congestion, and is sure to be harmful rather than helpful if repeated frequently. A small enema may be given to help the castor oil, but more than this should not be employed. In the variations of remedies much harm has been done, and new methods of treatment must not be adopted lightly, nor before proper realization of their possible effect.

Infant Feeding.—Dr. Artnur B. Meigs, of Philadelphia, said that the question of infant feeding had been a puzzle until the solution by imitation of human milk as early as possible had been reached. For ill children, dilution of the usual diet is the important feature of treatment. The idea of substituting a cereal for milk can scarcely be entertained during the first months of life, for it is poor in nutriment value, because of the lack of digestive power, and is likely to lead to disturbance. For older children the use of a cereal is admirable. In this matter it must not be forgotten that the old-fashioned flour ball is excellent, though in recent years neglect of this method has been the rule. Milk is the only complete food for children, and should not be withdrawn from the food. Its use is the sheet anchor in all diarrhea, but it must be so diluted as not to prove a source of irritation, and must be in such a state of purity as not to add further microbic disturbers already in the intestines. Dr. Meigs dreads the use of a purgative in case of children's diarrhea, and considers that admirable judgment is needed lest the purgative effect is overdone. Not infrequent it happens that an entirely wrong effect is produced by the use of purgatives.

Starvation Treatment.—Dr. William H. Wells, of Philadelphia, said that the first indication in the treatment of diarrhea must be that there shall be no food until the acute stage of the affection is past. Absolute abstention from all food must be insisted on as long as there are acute symptoms. Flushing of the bowel with sterilized water or with normal salt solution undoubtedly does good, though usually not more than two or three flushings during the day should be directed. At the beginning of the affection a purgative is of excellent service because it removes irritant material. Castor oil seems the best, but calomel in minute doses produces an excellent effect and has none of the difficulties of administration of castor oil.

Hypodermoclysis.—Dr. Wells is sure that in some cases in which the diarrhea of colliquative form has carried off large amounts of water, and so caused intense prostration, and in which vomiting does not permit the introduction of liquids in the system in the ordinary way, he has saved life by hypodermoclysis. Normal salt solution is employed for this purpose, and is introduced directly beneath the skin. This method is much better than the use of large quantities of fluid by the mouth, which is almost sure to be injurious.

Question of Cereals.—Cereals should not be employed for diet in children under nine months of age. Some children have the faculty for digesting starchy material, but most have not. When the infant is weakened by summer complaint, then the starch digestive faculty is decreased, and the result of giving cereals cannot but be harmful. In Dr. Wells' experience, condensed milk has not proved to be as beneficial for any form of diarrhea, even the chronic variety, as some practitioners claim. When he has found it of use, it was usually the unsweetened variety. It is evident, however, that for the diet of children, no general rules can be laid down, but each child must be treated as an individual, and the reaction of each little patient's system to various forms of food carefully noted.

Cereal Decoction.—Dr. A. D. Blackader, of Montreal, said that it seemed very inadvisable to give cereals to any extent to children under six months of age, since they have a very imperfect digestion for starchy materials. The starchy digestion in the upper digestive tract is very imperfect. The succus entericus helps out in starch digestion in not a few cases, but this is only in the normal health of the child. Irritation increases the digestive juices at first, but later decreases them, and consequently diminishes the hope of starch digestion. There is an increase of fluid in the digestive tract, but this is illusory, and does not contain digestant materials. The use of cereal for diarrhea only gives additional material for fermentation, which further adds to the irritated condition. In Dr. Blackader's experience predigested cereals have not given very favorable results, and pure water or carefully prepared whey

seem the only materials that should be given during the existence of acute symptoms.

Animal Broths.—Dr. Blackader considers that the nutritive value of animal broths is very low. They serve only to stimulate the digestive glands, but when these are already overirritated may serve only to increase the irritation. Dr. Blackader suspects that beef broths may encourage bacterial growth. Laboratory experience would certainly seem to show that beef juice might be expected to have this effect. As a rule the stools are more foul-smelling when beef broth is given, and this would seem to indicate the growth of undesirable bacteria in the intestinal tract.

Child Individual.—Dr. E. M. Buckingham, of Boston, said that in discussions of the illnesses of children sight is frequently lost of the most important fact, namely, that the child is an individual, and must be treated as such. There is no definite formula for mother's milk, but nature provides different kinds of milk for each individual in accordance with the nature of the child and its relation to its mother. It must not be forgotten that the child's muscles and glands are weak. The stomach must not be overloaded, and the digestive glands must not be asked to furnish much material. In making a substitute for mother's milk the modification must be made to suit the individual and not according to a table of figures. The fats, proteids and salts of cow's milk, it has been pointed out, are not of the same chemical constitution as those of mother's milk. Care must be exercised, as far as possible, to make a formula to suit the individual child. Percentages for children should not be prescribed in the ordinary house visit, but should be made out carefully in the office, suggesting only at first a preliminary formula. The most important thing is to remember how much effect even small changes in the food may have on the infant.

Cereals.—These may be given either as food or as drugs. If given as food to young infants, trouble will ensue, since the glands are not developed for their digestion. The pancreas has a ferment that will digest in some children, but this is not always present. When milk is not boiled, cereals may be tried, but with great care, and with a constant feeling that it is better to be sure than to be sorry. Cereals may be used as a drug, in the sense of mechanically breaking up the curd of milk. This is shown by experiments in the test tube, which are extremely crude.

Reason for Different Results Reported.—Different physicians get very different clinical results. There seems to be no doubt that the difference is really in the babies. Those who do not use starch at all in the dietary seem to have more confidence in their results than those who employ it. Undoubtely if milk is good for the well child it should be good for the ill child. Of course, it must be properly diluted for the weakened digestive juices. The fear of the child's starving is overdone. Children can stand lack of food for a considerable period, and it is less of a drain on them to be without food than to be given food that only increases the irritation in their intestines and makes their condition worse. A little brandy occasionally helps the child to stand the period of starvation, yet does not irritate unless it is given in sugar, which is sometimes recommended, but not as the result of experience. At the beginning of an attack of diarrhea the bowels should be emptied once. The best remedy for this is castor oil, and if it is vomited calomel should be employed.

Use of Water.—When there are many dejections, water should be given rather freely, because the fluid is being drained out of the child's system. If there is fever, ice water may be employed with advantage. Not infrequently it happens that there is at first some vomiting of the water, but then it is retained and the child sleeps. There seems to be no indication for lavage. At the beginning a large injection may be employed, but its repetition is likely to do harm. Even more than any remedy the child needs rest, and this must be of mind as well as of body. While it must not be handled or carried, any noise in the room, and especially any talking, is sure to prove a source of annoyance. If there is frequent irritative diarrhea, opium should be employed, and the best form is that of the liquid Dover's powder. The presence of ipecac in this makes it of special service. Once there has been an attack of diarrhea, it must not be forgotten that the child will probably not be able to take ordinary food until after the hot weather is over. If the child suffers from dysentery then irrigation should be freely employed, though in diarrhea this remedy would prove harmful.

Classification of Diarrhea of Infants.—Dr. John Lovett Morse, of Boston, said that he found himself compelled to disagree with much that Dr. Winters had said. For him there are two classes of infantile diarrhea; the one due to bacteria, the other not. Non-bacterial diarrhea may be caused by heat or cold, or by the nervous system, but is not inflammatory Most of the diarrheas of children, however, are bacterial in origin. There are many different forms of bacteria for causing the disease, and not one specific type. The first requisite in the treatment of diarrhea is pure fresh milk. There are four stages in the treatment. While the irritative material is present a purgative should be given, and the best is castor oil, the next is calomel. If the vomiting is persistent, then the stomach should be washed out. Irrigation of the colon should be employed once, though not more. After purgation comes starvation. This is to be considered, however, as referring only to food, and not to water. At least as much water must be given as the child would ordinarily get in its food. There need be no danger of hurting the child by starvation treatment for forty-eight hours at least, and Dr. Morse has seen absence of food continued for seventy-two hours or longer without serious results. If the starvation treatment could be kept up long enough, the diarrhea could be starved out; but unfortunately the baby dies before this period sometimes. When the readministration of food is begun milk should not invariably be employed, but the food should be chosen according to the indications.

Kinds of Food.—Bacteria grow readily in milk, but there are also forms of bacteria in these cases that grow in carbohydrate. As a rule, if the stools are sour, it is because of the growth of carbohydrate-loving bacteria. If they are foul, then it is because of the presence of bacteria that grow more readily in proteids. If the stools are foul, carbohydrate should be given; for sour stools, the proteids. Barley water really continues the starvation treatment while keeping up the supply of water, and satisfying the child's stomach to a certain extent, as well as the minds of the parents. When diarrhea is persistent the fats in the diet should be kept low. When there are a number of small stools, indicating the presence of ileocolitis, then food containing as little residue as possible, and which is absorbed high up in the intestine, should be employed. For this pur-

pose whey is best. Whenever there is long-continued diarrhea opium may be of service. It should never be given in acute cases, however. Other drugs are not worth mentioning. Irrigation of the bowels has its place when there are a number of stools containing blood, evidently coming from low down in the intestines. Irrigation should be employed not oftener than three times in twenty-four hours. When children are over three months, a small amount of starch may be given, but it must be remembered that such children will digest sugar rather easily. Each case must be treated as an individual, and not as a type of disease.

Infantile Diarrhea in the Country.—Dr. R. C. Newton, of Montclair, N. J., said that there were very few deaths from diarrhea in the country, and this is evidently due to the purer milk as food, and the absence of excitement and noise. The nearer the baby is to the cow, the less danger there is from artificial feeding, showing that it is not so much the unsuitability of the milk from the chemical standpoint as because of the changes that take place in it during transportation, and its retention before feeding, that cause diarrhea. Certainly it does not seem advisable to give starchy foods to young children. Beef juice and soups and broths have a distinct tendency to make the children more nervous than before.

Importance of Early Treatment.—Dr. John Dorning, of New York, said that more can be done for the child in the first twelve hours of a diarrhea than in the next twelve days. Dr. Dorning considers that cereal gruel as a diluent for milk has a distinct place and he is sorry for its condemnation. It serves to break up the milk curd, and makes it more easily digestible. General rules for baby feeding, however, have many exceptions, and the only rule is each baby for itself. Opium is a dangerous drug for children, and the less it is given the better. Subnitrate of bismuth, however, given in doses of five to ten grains every three hours, is undoubtedly of service. At the beginning of a diarrhea one or two irrigations should be given, but not more. Cleanliness, as a rule, is not enough insisted on in these cases, and as a consequence, children become secondarily infected. After the handling of the napkins the hands should be thoroughly washed before the baby's food or clothes are touched.

Dr. Floyd Crandall said that the principle that what is good for the well is good for the ill does not hold in adults in fevers, since no one would think of giving steak and potatoes; why, then, in children? The question of cereals is still open, but there is no question that milk should be stopped at once, though water should be given freely. Dextrinized cereals have proved of service in Dr. Crandall's hands.

Dr. Walter Lester Carr gave a set of statistics in which, in England, artificially-fed children got on better than nursing children. This is evidently one of the anomalies of statistics.

Lime Water in Diarrhea.—In closing the discussion, Dr. Winters said that lime water must be the great standby of the physician in treating children's diarrhea. No one had ever treated children's ailments successfully without administering lime water freely. It breaks up the curd of milk better than does the cereal. The use of lime water in large quantities is one of the things for which the present generation must thank the teachings of Dr. Meigs, of Philadelphia. He it was who first showed that cow's milk was entirely too rich in proteids, and that human milk only contained one per cent. of proteid material. This has since been verified by investigators all over the world. The best way to reduce the proteids in cow's milk is to use lime water freely. Without the addition of one-fourth lime water to cow's milk the baby will not be kept well, nor will it get well when once ill. In baby feeding two things particularly are needed—more attention to the individual baby, and more dependence on clinical experience, rather than on the results of laboratory work. The laboratory has failed over and over again in its suggestions. Experience is a sure guide.

CHICAGO MEDICAL SOCIETY.

Regular Meeting, held April 12, 1905.

SYMPOSIUM ON SURGICAL ANESTHESIA.

Ether or Chloroform.—Dr. H. D. Peterson discussed the choice of ether or chloroform, methods of administration, dangers and after-effects. He said the relative value of these two anesthetics depends upon the safety. Safety is measured by the action of the drug and experience of the anesthetist. Chloroform, being more depressant and toxic, is less safe than ether. Statistics have proven the death-rate to be higher with chloroform than with ether. The choice of anesthetic is to be decided by the condition of the patient and experience of the administrator. There are few contra-indications for ether, more for chloroform. Heart disease, shock, prolonged operations are urged against chloroform. Chloroform is an unsafe anesthetic in the hands of the unskilled. The author recommends the closed method for ether, the open for chloroform. Each should be commenced by slow application. A minimum amount should be added after stage of surgical anesthesia is reached. As to the dangers, they are few if ether is used. Death from ether is usually due to inattention or carelessness of the anesthetist. Warning is always given. Chloroform is sudden in action; little or no warning is given. Close watch of the patient is necessary when chloroform is used. Recovery varies with the dose given. A minimum dose is followed by the quickest recovery. The patient should be watched until conscious enough to clear his own throat of mucus. As to after-effects, vomiting is often prevented by allowing the inhalation of vapor of aromatics, vinegar or acetic acid. Normal saline solution per rectum or by hypodermoclysis aids in the rapid elimination of a general anesthetic

Spinal Anesthesia.—Dr. A. E. Halstead read a paper on this subject. The objections to the use of spinal cocainization, that are usually made, were stated as follows: (1) That they are immediate and remote dangers, which are considerable. (2) That it is uncertain in its action, both as to producing surgical analgesia and as to its duration. (3) That attempts at introducing cocaine sometimes fail. (4) That unpleasant after-effects result.

Technic.—In all of his cases the technic employed was that followed by Tuffier. The steps are: (1) Preliminary hypodermic of morphine, ¼ gr. (2) Careful preparation of lumbar portion of the back, extending around as far as the middle of the crest of the ilium. (3) Sitting posture, if possible, with the body bent forward in the "scorching position." (4) Recognition of the fourth lumbar spine, which is found drawing a line from the highest point of one iliac crest to the same point on the opposite side. (5) The needle is introduced just below and to one side of the tip of the fourth lumbar spine, and is directed upward, for-

ward and toward the median line for a distance of from 2 to 3½ inches. When the membranes are penetrated a distinct diminution of resistance is noticed. As soon as the needle enters the spinal canal the spinal fluid usually begins to drip from the needle. At first, it may be blood-stained, but soon becomes clear. If, after reaching the canal, no fluid escapes, its flow may be hastened by having the patient cough. A stylet may be passed into the needle to remove any obstruction that might be present.

Surgical Indications for Spinal Cocainization.—In operations upon the lower half of the body, when, from kidney, lung or heart disease, a general anesthetic is dangerous, and where infiltration anesthesia or analgesia from neural injections is not possible, spinal analgesia can be employed. In strangulated hernia or intestinal obstruction from other causes, and perforations, where considerable time may be required, thus contraindicating the use of local anesthesia, spinal cocainization is an ideal method of securing analgesia, first, because the patient remaining conscious is not so likely to drown in fecal vomit; second, because the shock from the puncture is practically *nil*. In traumatic surgery of the lower extremities, the use of spinal cocainization "blocks" the reflexes and eliminates the great risk of shock. In amputations about the hip, when the shock from the operation is generally severe, and often fatal, after cocainization of the cord the amputation may be performed without any change in the pulse rate. In this class of operations if, for good reasons, unconsciousness is essential, as it sometimes is, a small amount of ether and chloroform may be administered to secure this end. The spinal cocainization insures the required analgesia The author believes spinal analgesia is contraindicated in all cases in hysterical women and young children and in the insane. It should be used only when its action can be explained to the patient, and thus cooperation secured. He does not consider any ordinary heart lesion a contraindication to its use. It goes without saying that any marked idiosyncrasy for cocaine should constitute a positive contraindication against spinal analgesia.

Nitrous Oxide Anesthesia.—Dr. Weller Van Hook stated that the thoughtful surgeon, who in the course of each year must anesthetize many human beings, is obliged to contemplate with growing horror the inevitable death list of those whose taking off is due solely in his effort to abolish consciousness for a few minutes. Although death takes place from the administration of the major anesthetics in only one case in 3,500 to 14,000 or 15,000, even this proportion becomes after a while oppressively great and forces the operator to seek new and safer methods. He did not hesitate to say that one of the very greatest needs of surgery at the present moment is to find a simple method of temporarily abolishing consciousness at once practical and devoid of evil consequences. Of the principal anesthetics, nitrous oxide and ether are admittedly the safest, and their combination has long been regarded as valuable and comparatively free from danger. No modern hospital is complete in its equipment without apparatus for administering nitrous oxide gas. It is not necessary to detail the multitude of uses to which its brief anesthesia can be put. Inasmuch as gas alone produces a lethal asphyxia in from three to five minutes, oxygen must be utilized when cyanosis becames pronounced. The addition of about ten per cent. of pure oxygen makes it possible to continue anesthesia with nitrous oxide gas a comparatively long time without much risk. Unfortunately the combination makes necessary a complicated and bulky apparatus. Furthermore, the use of the two gases is rather difficult until the anesthetizer by practice has become expert. This difficulty renders it next to impossible to entrust to hospital assistants, whose term of anesthetic service is necessarily brief, so complicated a duty. If, however, oxygen is admitted to the mask with air from time to time as it is needed, the apparatus demanded can be simplified to a practical point. The apparatus which the writer uses for this purpose is the ordinary dental outfit, the facepiece being that of Harrington. The portability and convenience of the steel bottles containing the liquefied gas and the inhaling apparatus leave but little to be desired in hospital practice. Instead of the 250-gallon bottles used in institutional work, a 100-gallon bottle weighing approximately nine pounds can be used in private practice. It was many years ago that the idea was conceived of using nitrous oxide to abolish consciousness, followed by ether to maintain that state. It was easily discovered that if air is admitted to the mask after nitrous oxide anesthesia has been induced, the patient will recover consciousness to such a degree that the ether anesthesia can be inaugurated only with difficulty, the patient often struggling violently. The ideal way of changing from one to the other of these anesthetics is by gradually adding ether vapor to the inhaled gas. Various complicated apparatus have been invented for this purpose. They are cumbersome, delicate, difficult to manipulate or fragile. In order to render practical the use of these anesthetics in combination, the writer has had made a simple cap to contain a piece of gauze saturated with ether which can be applied to the nitrous oxide apparatus at the moment of making the change, so that no air will be admitted to the mask until after the patient has inhaled the desired amount of ether. With this apparatus, the writer and his associates have anesthetized many hundred patients with satisfactory results. The combination of nitrous oxide with ether is recommended to all as a comparatively safe, rapid and comfortable method of inducing anesthesia.

Dr. Emil Ries discussed scopolamine-morphine anesthesia, and Dr. William E. Schroeder nerve blocking and cocaine-adrenalin-anesthesia.

THE SOCIETY FOR EXPERIMENTAL BIOLOGY AND MEDICINE.[1]

Laboratory of clinical pathology, Cornell University Medical College, May 24, 1905.

Vice-President, Edward K. Dunham, in the Chair.

Members Present.—Atkinson, Auer, Brooks, Burton-Opitz, Crampton, Davenport[2], Dunham, Emerson, Ewing, Field, Flexner, Gies, Herter, Levene, Levin, Lusk, Meltzer, Mendel[2], Morgan, Noguchi, Norris, Oertel, Opie, Richards, Salant, Sweet, Torrey, Wallace, Wolf.

Members Elected.—Joseph Erlanger, Otto Folin, E. O. Jordan.

ABSTRACTS OF REPORTS OF ORIGINAL INVESTIGATIONS.

Contributions to the Study of Sulphur. I. The Metabolism in Brombenzol Poisoning.—By W. Mackim Marriott and C. G. L. Wolf.—Baumann and his pupils investigated the effect of the administration of the halogen derivatives of the hydrocarbons, and found that one of the results in the disturbance which followed was the elimination of halogen aromatic mercapturic acids, which he regarded as derivatives of cystin. Later,

[1] Proceedings reported by the Secretary, William J. Gies, Ph.D., of New York. The authors of the communications have written the abstracts. The Secretary has made a few abbreviations.

[2] Non-resident member

Friedmann investigated these compounds and was able to confirm Baumann's view. The mercapturic acids are derivatives of cystēin, the reduction product of cystin.

This study is a part of an investigation of cystinuria, the view, which has been advanced by previous observers, being taken that the process in brombenzol poisoning is an experimental cystinuria. Dogs were used in these experiments, and were fed on a uniform diet. The animals were catheterized once a day. Analyses of the urine, as complete as possible, were made. The feces were examined for nitrogen and fats.

During the period of administration of the brombenzol the nitrogen and urea were somewhat increased. The urea followed the total nitrogen closely. The preformed ammonia remained at a level below that of the fore period. The kreatinin estimations did not give results of any distinctness.

The investigation of the partition of sulphur led to the result that while the total sulphur excretion was not increased during the experiment, there was almost complete suppression of the alkali sulphates. The excretion of neutral sulphur, represented for the most part in this case by parabromphenylmercapturic acid, was increased 400 per cent. The curves representing the alkali and neutral sulphur were antipodes. The ethereal sulphates rose markedly during the feeding period. In one experiment it was shown that during the first two days of the administration, the total sulphur excretion remained constant while the total sulphate-sulphur fell rapidly. This period is being made the subject of closer study.

The chlorin and phosphorus excretion remained practically constant during the experiment. There was increased nitrogen and fat elimination in the feces.

On section, the animals showed ulceration of stomach and intestines. Microscopically, the liver and kidneys were markedly degenerated. The investigation is being continued.

On Experimentally Produced Variations in the Energy of Tumor Growth.—By Leo Loeb (Presented by James Ewing).—Inoculations of different tumors (sarcomas of the thyroid, mixed tumor of the submaxillary gland) through several or many generations have shown that, under the influence of experimental conditions, the energy of the tumor growth varies in a definite way. The rate of growth is relatively slow in the animal originally affected with the tumor; after the inoculation into the first generation, there is a certain latent period, after which the tumor begins to grow. The growth of the first generation is more rapid than it has been in the original animal. After the inoculation into the second generation, the latent period is abbreviated, in some cases more, in others less, and the succeeding growth is likewise more rapid than the growth in the original animal, or in the first generation. From now on, a further shortening of the latent period, or an increase in the rapidity of tumor growth, does not take place in the succeeding generations. Duration of the latent period and rapidity of growth may remain stationary through many generations, or the energy of the tumor growth may even somewhat decline.

These facts permit the conclusion that transplantation of a tumor has a tendency at first to increase the energy of tumor growth and that this increase may be cumulative. That this increase does not continue in succeeding generations may perhaps be explained by the existence of counteracting influences, the actual existence of which can be demonstrated as shall be shown later.

The energy of tumor growth can be increased directly and not only indirectly, merely by removal of the tension of the surrounding capsule or by better conditions of nourishment. Such a direct stimulating effect of the wound upon the cell growth causes probably a phenomenon not infrequently observed by surgeons, namely, the increase of malignancy in recurrent tumors. It is also possible to diminish the energy of tumor growth. In the course of tumor inoculations it not rarely happens that certain tumors remain stationary or even retrogress apparently spontaneously. This is especially found in the course of later inoculations and it probably indicates that after many inoculations one or several of the factors determining a vigorous tumor growth become gradually weakened. In such cases one can observe that even a long time after the expansive growth of such a tumor piece has ceased, many mitoses are present in the cells of the stationary or retrogressive tumor.

It is possible to diminish the virulence of tumor cells directly by subjecting them to certain physical or chemical conditions. By heating tumor cells up to 43° or 44° C. for half an hour outside the body, or by leaving them before inoculation, in glycerine from twelve to twenty-four hours, and washing them afterwards in .85 per cent. sodium chloride solution or by keeping them one or two days in N/700 KCN solution, before transplantation, we are able to diminish considerably the energy of the succeeding tumor growth and to increase the period of latency . In the author's recent tumor inoculations of a salivary tumor, a similar action of glycerine in increasing the period of latency was found to occur. Frequently such tumors remain stationary after a short preceding period of growth. In the first experiments of this kind in rat tumors, it was found that a temperature of 45° C. during half an hour kills the tumor cells. Jensen found a similar sensitiveness in his mouse tumors. Sticker's lymposarcoma could be heated up to 45° C. without being killed. The power of resistance of different varieties of tumor cells varies somewhat therefore and the means to be adopted to obtain a diminished virulence in the growth of an inoculated tumor will vary accordingly. In this connection, it might be mentioned that these facts may perhaps find a practical application in so far as pieces of tumor previously subjected to such treatment might be used to procure active immunity against tumor growth. That such active immunity is possible, at least in the case of certain tumors, is especially indicated by the observations of Sticker.

If we now wish to analyze the cause of this decrease in the rate of the growth of tumor cells we have to consider several possibilities. It might be that the physical or chemical means employed kill most of the cells and leave only a few cells alive able to give origin to the developing tumor. Two facts speak against such an interpretation. In the case of any tumor transplantation, the growth starts from a relatively small number of cells, in so far as the central part of the transplanted piece becomes necrotic. In his first series of tumor transplantations the author obtained well growing tumors, after injecting a cystic tumor fluid into rats. In such cases one or very few cells must have given rise to the tumor growth, and these tumors developed in a few cases quite rapidly. Such an explanation is therefore probable. Further, we would have to consider the possiblity that the means employed to decrease the virulence of tumor cells are favorable to the growth of bacteria and that they inhibit in this way the development of tumors. It is certain that bacterial toxins frequently act unfavorably upon the growth of tumors. Against this explanation, however, the objection can be raised that tumors with experimentally diminished virulence did not show any signs of putrefaction, nor did they, after inoculation, cause a formation of abcesses, occurrences which are frequent after transplantation of infected material. It

is, therefore, most likely that the cause of this decrease in virulence is the result of the direct decrease in the vitality of the tumor cells as expressed in their energy of growth. It is, however, desirable to further analyze these facts in future experimental work on tumors, especially as the character of such work of necessity limits the number of experiments a single observer can make. With this restriction it may be stated that the observations here recorded point to the conclusion that it is possible to cause an experimental increase or decrease in the energy of tumor growth, and that these variations may be caused by direct stimulating or depressing influence upon the tumor cells and that such a stimulation effect may be cumulative.

Demonstration: Photographs and Plumage-charts of Hybrid Poultry, with Remarks. Charles B. Davenport exhibited photographs and plumage-charts of four hybrids between different races of poultry, and also of their parents, and remarked on the nature of the inheritance illustrated by each example.

Experimental Cirrhosis of the Liver.—By Richard M. Pearce.—Presented by Eugene L. Opie. The experimental studies upon which this communication is based were suggested by an investigation of the necrosis produced in the liver of the dog as the result of injecting hemolytic immune sera of high hemagglutinative power (*Journal of Medical Research*, 1904, xii, 329). These necrotic lesions, which are due apparently to an obstruction of the circulation by thrombi composed of fused red blood corpuscles, vary in position and extent according to the dose of serum administered. Small doses cause more or less isolated lesions which may occupy any portion of the lobule; large doses produce a diffuse necrosis which spares only the tissue about the larger portal spaces. The uniformity of this necrotic lesion suggested the importance of a study of the repair process which would naturally follow in animals recovering from the acute toxic effects of the injected serum. The extent of the destruction precluded complete regeneration of liver parenchyma and if the defect was repaired by connective tissue proliferation, the resulting histological picture would be, except for a difference in the relation between the new tissue and the remainder of the lobule, analagous to cirrhosis in man.

Methods.—Dogs were injected either in the smaller branches of the femoral vein, or in the abdominal cavity, with serum obtained from rabbits which had received repeated injections of red blood corpuscles of the dog. The dose usually employed was 1 cubic centimeter of serum to 500-800 grams of body weight and the animals were killed at intervals varying from 48 hours to 36 days.

Results.—A majority of the animals die after intervals varying from 4 minutes to 48 hours. In those surviving, hemoglobinuria was a constant phenomenon usually appearing within 18 to 24 hours, persisting 3 to 4 days, and followed for several days by the presence of bile pigment in the urine. The first evidence of repair was mitosis of the liver cells lying at a slight distance from the necrotic areas. The earliest period at which this was seen was 38 hours after injection. At 48 hours the proliferation of endothelial and connective tissue cells was evident and this increased so rapidly that by the fifth day the necrotic tissue was largely replaced by young granulation tissue in the midst of which dividing liver cells could be found in considerable number. The young tissue later assumes a more fibrous apppearance, the new blood vessels become prominent, and newly formed bile ducts appear in the midst of the stroma. A development of liver cells from these new bile ducts is readily demonstrated. Multinucleated liver cells containing four to twelve nuclei are very abundant in the late stages. An interesting phenomenon is the engloblng and removal of the hyaline remains of necrotic liver cells by large multinucleated masses of protoplasm. These giant cells, essentially foreign body giant cells, are derived in part from endothelial cells, but may have all the characteristics of true hepatic cells and are, he is convinced, multinucleated liver cells with phagocytic properties. The oldest lesion obtained (36th day) presented an appearance analogous in histological structure to early cirrhosis as seen in man, differing only in that the new connective tissue surrounded the islands of liver tissue persisting about the portal spaces, instead of having a distinctly perilobular arrangement. Macroscopically, this liver was much firmer than normal, deeply bile stained and had a finely granular surface. Thus we have a form of experimental cirrhosis affecting the liver in a diffuse but uniform manner, and more typical than any previously described in the literature.

The observations thus briefly outlined, while of importance in explaining the histogenesis of cirrhosis, and incidentally of various processes of repair in liver tissue, do not aid in the elucidation of the etiology of cirrhosis in man, nor do they explain the peculiar arrangement of the connective tissue in human cirrhosis. They demonstrate, on the other hand, however, that cirrhosis may follow extensive primary destructive lesions, a view not yet fully accepted, and thus support the contention of Kretz that cirrhosis is essentially the result of a series of repair processes following repeated injuries of liver parenchyma. The earlier lesions closely resemble acute yellow atrophy of the liver in man and are, the author believes, of considerable importance in explaining the pathogenesis of this process.

Experimental Arteriosclerosis.—By Richard M Pearce and E. McD. Stanton. (Presented by J. E. Sweet.)—Within the past two years several French and German writers (Josué, Erb and others) have described under the various name of calcification, atheroma or arteriosclerosis, a lesion of the aorta of rabbits produced by the intravenous injection of adrenalin. These experiments have been repeated for the purpose of making detailed histological studies and in the hope of throwing some light upon the histogenesis of arteriosclerosis in man.

Methods.—Rabbits have received injections of 1-1000 solution of adrenalin in the ear vein. An initial dose of 3 minims repeated every other day has been the usual procedure. In other instances the dose has been gradually raised until a dose of 20 to 25 minims was given every day. The animals have been killed after periods varying from a few days to 8 weeks.

Results.—The vascular lesions produced are limited to the aorta and exhibit a more or less definite sequence. Rabbits receiving 5 to 6 injections show no gross lesions, but histologically important changes in the media are evident. These consist of focal areas of degeneration in which the muscle fibres are destroyed without alteration of the elastica. Later the degeneration is more extensive and involves the greater portion of the middle zone of the media. At this time changes in the elastic tissue appear; the fibers become swollen, stain irregularly and in some places appear to be fused together Special stains show a small number of minute fat droplets in such areas. After 12 to 15 injections very definite lesions are evident macroscopically. The aorta is more or less distorted in shape, rigid and non-elastic. Irregular dilatations alternate with elevated brittle areas of calcification. Distinct atheroma with ulceration is seldom seen In the experiments continued for six to

eight weeks the process becomes very diffuse and small dilatations of the thinner portions of the aorta assume the appearance of aneurisms. At this stage the destruction of the elastic fibers is extreme and all degenerated areas are infiltrated with lime salts. Cellular infiltration and repair about such areas has been seen in a few instances and experiments are now under way to determine the frequency and extent of this reparative process. The changes in other organs include enlargement of the heart, edema and congestion of the lungs, and degenerative changes in the liver and kidney, and occasionally in the heart and other muscles. Whether the vascular changes are due to a primary toxic action of the adrenalin or whether they are the result of the increased arterial tension which it causes, cannot be determined from these experiments. This question of etiology must be settled by other methods of investigation. The chief value of the studies herein briefly summarized lies in the application of this comparatively simple series of changes to the more complicated vascular lesions occurring in the arteriosclerosis of man.

On the Chemical and Physiological Properties of Ricin, with Demonstrations.—By Thomas B. Osborne and Lafayette B. Mendel.—A chemical study of the castor bean has indicated that this seed contains proteins of the same character as the other oil seeds which have been examined, namely, (1) a considerable quantity of a globulin which can be obtained in octahedral crystals; (2) a much smaller quantity of an albumin, coagulating at about 66° to 70° C. the temperature a which it separates depending to a large extent on the rate of the heating and other conditions; (3) proteoses which appear to belong to several of the newly recognized groups of this class of substances. The satisfactory separation of the various types of proteids was accomplished largely by the use of fractional salt precipitation and dialysis. The toxic constituent of the castor bean has been investigated under Kobert's guidance by Stillmark, who applied the name *ricin* to proteid material which he separated. The product which Stillmark regarded as relatively pure must have been a mixture of proteids and have contained only a small proportion of the toxic compound. Cushny made a more careful study of ricin and obtained a substance of sufficient toxicity to produce death in animals with a dose of 0.04 milligram per kilo of body weight. He regarded the toxic compound as proteid in nature. Among subsequent investigators Jacoby has denied the proteid character of ricin. He digested his toxic preparations with trypsin and obtained solutions which retained their toxicity although apparently no longer giving proteid reactions. Brieger, however, failed to prepare toxic preparations free from proteid material.

The efforts of the authors have been directed especially to the possibility of isolating the toxic constituent of the castor bean and determining its chemical nature. The toxic action has been found to be associated wholly with the preparations containing the coagulable protein and never with those free from the albumin already mentioned. The toxicity of the products consisting chiefly of this albumin was extremely great, the most active preparation proving fatal when administered subcutaneously to rabbits in the small dose of 0.0005 milligram per kilo of body weight. Each sample of ricin prepared by the authors showed characteristic agglutinating properties in its behavior towards blood erythocytes, in marked degree; and the pathological findings after intoxication were typical. The other proteins of the seed are devoid of the properties noted for ricin, thus demonstrating the applicability of the methods of separation employed. The toxicity of the active preparations is proportional to their content of coagulable albumin, the purest specimens containing, as their analysis shows, little else than proteid. Thus far their determinations have shown that this ricin prepared by the authors does not differ from ordinary proteins in composition, heat coagulation, color reactions, precipitation reactions, specific rotation, or in the state of combination of its notrogen. By tryptic digestion the agglutinating power of pure ricin may be greatly impaired or destroyed. The experience of the authors lends no encouragement to the attempts to "purify" such toxins by methods designed to eliminate proteid substances from the active materials.

On a Method of Determining Indol, with Demonstrations.—C. A. Herter and M. Louise Foster. The method described by the authors constitutes a rapid and accurate means of determining indol. It is based on the fact that indol, in slightly alkaline solution, readily condenses with naphthoquinon sodium mono-sulphonate, and forms a blue crystalline compound which is only very slightly soluble in water and is readily extracted by chloroform from a watery solution or suspension. The condensation compound results from the union of two molecules of indol with one of the naphthoquinon sulphonate. The union does not occur as in the case of compounds with amins, with the elimination of the sulphonic acid group, but occurs between one of the carbonyl groups of the napthoquinon compound and the imid group of the indol. The new compound is therefore a diindyl-naphthoketone mono-sulphonate. The solubility of this substance in chloroform is about one part in 4,000 of the solvent, and is sufficiently great to permit a rapid and thorough extraction of the substance. Chloroform containing the diindyl compound has red color, very like that of hemoglobin. Owing to this circumstance, the condensation compound in chloroform can be approximated colorimetrically in a convenient manner by comparing the tint of the solution with that of the orange-red glass scale of the Fleischl hemoglobinometer. Where more accurate results are desired the chloroform is evaporated and the residue of the diindyl compound weighed. It was found that the method here indicated serves for the recovery of a very large percentage of indol from peptone solutions or bouillon. From solutions containing a little proteid the indol may be recovered almost quantitatively. The presence of a large proportion of proteid may cause the retention of considerable indol. The distillation should be carried on directly, without steam, from the acidified fluid. The presence of indol in a small fraction of distillate is best ascertained by boiling the acid solution with a few drops of a 2 per cent. alcohol solution of dimethylamidobenzaldehyde. Skatol forms an homologous and similar compound with naphthoquinon, but the substance is violet rather than blue.

Anesthesia Produced by Magnesium Salts. A Preliminary Communication with Demonstrations.—By S. J. Meltzer and John Auer. The authors exhibited to the society two guinea-pigs which were deeply narcotized by injections of magnesium sulphate. One of these animals had been similarly narcotized twice before, and fully recovered each time. In their physiological and toxicological studies of magnesium salts the authors found that by subcutaneous injections of certain quantities of sulphate or chlorid of magnesium, animals can be brought into a state of deep anesthesia, during which any operation can be performed upon them without the least resistance. If the dose of the salts is not too large heartbeat, blood pressure and respiration remain nearly normal. It was tested on dogs, cats, rabbits, guinea-pigs, white rats and frogs. A grain and a half of magnesium

sulphate is about the effective dose for most of the animals. The chlorid has to be used in smaller doses in proportion to its smaller molecular weight. Particulars will be reported later. The authors wish to emphasize the fact that these salts are very poisonous when certain maximum doses are exceeded.

Enzymes and Anti-enzymes of Inflammatory Exudates.—By Eugene L. Opie. Exudates obtained by injecting suspensions of aleuronat into the pleural cavities of dogs and rabbits were subjected to autolysis. The Kjeldahl method was used to determine the nitrogen of coagulable proteids converted by digestion into soluble form. Inflammatory exudates removed one or two days after injection of the irritant undergo very little change, while those removed three or more days after the onset of inflammation exhibit appreciable though slight autolysis. There is no relation between the amount of digestion and the number of cells which are present. If the cells all separated by centrifugalization from the serum and suspended in normal salt solution well marked autolysis is demonstrable. By recombining cells and serum it can be shown that the serum inhibits this autolysis. When this inhibitory action is prevented by heating the serum to 100° C leucocytes acting upon the coagulated serum cause very active digestion. In the following summary nitrogen of uncoagulable substances is represented by cubic centimeters of 1-10N. sulphuric acid; 5 cc. suspension of cells at 37° C., 5 days 9.3° cc.; control, 3.60; 5 cc. serum, 7.25; 5 cc. cells +5 cc. serum at 37° C., 5 days, 10.95; control, 10.85; 5 cc. cells+5 cc. coagulated serum at 37° C., 5 days, 23.1; control, 10.85.

The anti-enzymotic action of the serum is unaffected by a temperature of 65° C., but is destroyed at 75° C. The proteolytic ferments of the leucocytes act both in an acid and in an alkaline medium, but are most efficient in the latter. The anti-enzymotic action of the serum is favored by an alkaline reaction, but is completely lost in an acid medium. The serum of the exudate contains a proteolytic ferment which is active only in an acid medium. These facts are illustrated by the following summary of an experiment in which 5 cc. of a suspension of cells with serum, cells with heated serum and serum alone were kept at 37° C. for a period of five days.

The anti-enzymotic power exhibited by the serum of the inflammatory exudate is possessed by the serum of the blood, from which it doubtless passes into the exudate. In the later stages of inflammation produced by aleuronat, and in exudates caused by bacteria, there is some diminution of the anti-enzymotic action.

Shallow Well Waters of Brooklyn.—By James P. Atkinson. Many streets of Brooklyn are without a public water supply and a sewage system. The residents of these streets are therefore dependent upon wells for their water supply, and upon privy vaults and cesspools to receive the sewage and waste water of their homes. The soil is uniformly sandy and water may be had by driving a pipe or digging a few feet below the surface. The water so obtained is to a certain extent surface water. The underground water is necessarily influenced by the sea water. This influence is very marked in some instances, as is shown by the high chlorin content, accompanied by the low contents of other constituents which could indicate sewage contamination. The following tables present average analytic data regarding condemned shallow wells, also regarding wells considered to be of a suspicious quality and wells which are passed as being of fair quality. Very few of the latter class were considered to be of good quality, and some might have possibly been classed as suspicious upon their high nitrate contents considered with the proximity of the sources of contamination.

The highest and lowest figures which enter into the averages are also given. These figures do not represent any particular analyses, but are selected from the different analyses from which the averages are made. Table D gives the average data for deep wells that supply water for manufacturing purposes, and they may be used as a standard in judging the purity of wells whose waters are used for domestic purposes.

Tables giving averages and high and low figures of analyses of 438 shallow wells in Brooklyn, N. Y., which are used for domestic purposes, and a table of deep wells used for manufacturing purposes. The figures represent parts in 100,000.

A—82 CONTAMINATED WELL WATERS.

	Cl.	NO_2	NO_3	Free NH_3	Alb. NH_3	Distance from source of contamination.
A	4.64	.0018	.70	.0236	.0045	47 ft
L	.70	.0001	.30	Trace	.0004	10 "
H	9.00	.0100	3.60	.4900	.0400	150 "

B—59 SUSPICIOUS WELL WATERS.

A	5.33	.0006	.634	.0057	.0035	45 ft
L	.80	.0004	Trace	Trace	Trace	20 "
H	32.00	.0025	2.400	.0875	.0180	75 "

C—297 UNCONTAMINATED WELL WATERS.

A	2.94	Trace	.582	.0026	.0031	43 ft
L	.40	None	Trace	Trace	Trace	10 "
H	12.10	.0003	3.600	.0190	.0270	100 "

D—14 UNCONTAMINATED DEEP WELL WATERS FOR BREWERY AND FACTORY USE.

A	5.60	Trace	.300	.0010	.0020	....
L	.80	None	.040	Trace	Trace	....
H	17.00	.0002	.400	.0065	.0030	....

A = Average figure. L = Lowest figure used in average. H = Highest figure used in average.

67.9 per cent. were considered to be of good quality. 13.4 per cent. were found to be of suspicious quality. 18.7 per cent were considered to be contaminated and unfit for domestic purposes.

It was found impossible, as a rule, to use the figures for chlorin and ammonia contents of these Brooklyn waters in judging their purity. The nitrates might give some clue to the condition, but it was mainly upon the nitrites that one had to depend. There was in each case of condemnation ample chance of pollution through privy or cesspool, and in many cases other sources such as stables for horses and cows, pig sties, chicken yards, etc. When the nitrites were as high as .0010 parts per 100,000 the water was condemned. When the nitrites ranged between .0003 and .0010 parts per 100,000 the water was considered to be of suspicious quality, and warning was given to boil before using for domestic purposes. In Brooklyn and Queens there are waters of known purity which show nitrites as high as .0003 parts per 100,000. Therefore, when nitrites amounting to .0003 parts per 100,000 were found, with other constituents of the water suitably low, such waters were passed as fit for domestic purposes.

It will be noticed in comparing the average figures of tables A, B and C that nitrite decreases with ammonia, and that the figures for nitrate are about the same in each table. The average chlorin in table C is much lower than in tables A and B, while the average depth of the wells and their average distance from the sources of contamination are about the

same. The nitrogen averages of table C approach those of table D. If one takes the nitrogen figures of the deep wells as a standard, the conclusion may be drawn (a) that the sandy soil of Brooklyn cannot be relied upon as a safe filter; (b) that Brooklyn soil, so far as the author's evidence goes, seems to be nearing the saturation point with sewage; and (c) that, consequently, these shallow wells are in growing danger of pollution.

The Influence of the External Temperature upon the Viscosity of the Blood.—By Russell Burton-Opitz. It was proved by a series of determinations that the viscosity of the "living" blood can be greatly influenced by changing the temperature of the surrounding medium. The viscosity was markedly increased if the dogs, used in the experiments, were immersed in water at 25° C. Warm water baths (42° to 45° C.) produced a corresponding decrease in the viscosity. The specific gravity of the blood was changed in a corresponding manner.

The Changes in the Viscosity of the Blood During Narcosis.—By Russell Burton-Opitz. Determinations of the viscosity of the "living" blood were made during deep and light ether and chloroform narcosis. It was found that the viscosity is increased by deep and lessened during light narcosis. The specific gravity of the blood also shows regular variations. It is increased by deep and lessened by light ether narcosis. Chloroform, on the other hand, produces a slight decrease during deep and an increase during light narcosis. Hence, the specific gravity cannot be regarded as an accurate index of the viscosity.

Studies of the Effects of Radium on Plants and Animals, with Demonstrations.—Communicated by William J. Gies. The various studies of radium included in this communication and which are still in progress were carried out at the writer's suggestion and under his general direction. They were made possible by the generosity of Mr. Hugo Lieber, who gave the writer an abundant supply of radium preparations for each series of experiments. Professor William Hallock also encouraged the work by permitting the use of some of his valuable preparations. Dr. G. B. Pegram has given advice freely on physical matters connected with radio-activty. The studies included in this plan were the following:*

Preliminary Notes on the Effects of Radium Rays on Plants.— By C. Stuart Gager, of the New York Botanical Garden. The radium has been employed in several forms and degrees of activity from 10,000 to 1,500,000. Experiments, so far, indicate that the effect is the same in kind, whether the plants are stimulated with gamma rays only, or with alpha and beta rays as well. When all three kinds of rays are employed, the effect, within the same time, seems to be increased. The results already obtained justify the following statements:

The rays of radium act as a stimulus to plants. For this stimulus there are minimum, optimum and maximum points, depending upon the proximity of the radium to the plant, the strength, quantity and condition of the radium salt, the time of exposure, and the nature and condition of the tissue.

The early stages of seed germination are accelerated, if stimulation ranges between the minimum and optimum points; otherwise they are retarded. Seeds are less sensitive to the rays when dry than when soaked. When seeds are stimulated *during* germination, subsequent growth is retarded; but radium rays acting through soil in which plants are growing accelerate both germination and subsequent growth of the shoot.

The growth of plants is retarded in an atmosphere of decaying radium emanations, such as may be drawn from tubes lined with Lieber's "radium coating."[1] Development of leguminous tubercles is retarded when a glass tube of radium bromide (10,000 activity) is in the soil. Experiments to obtain radiotropic response have so far given negative results. Alcoholic fermentation is accelerated by radium rays.

Chloroplasts, under the influence of the rays, change their position in the cell, as when exposed to too intense sunlight. Plastids are soon overstimulated, and their activity completely inhibited, causing etiolation and other attendant effects. Gemmæ of *Lunularia*, exposed for six days, failed to develop thalli. Meristem (embryonic tissue) of the hypocotyl is destroyed by prolonged exposure to the rays.

The Action of Radium Rays on Amœba Proteus and upon Other Microorganisms.—By Louis Hussak, of the Laboratory of Zoology, Columbia University, and the American Museum of Natural History. These experiments were intended primarily to show the influence, if any, of radium rays on the protoplasm of *Amœba proteus*. Other microorganisms (*Vorticella, Paramœcium*, etc.) were also subjects of experiment. Radium bromid preparations of 600, 1,000 10,000, and 1,500,000 activity (in thin glass tubes) were used and several celluloid rods covered with Lieber's "radium coatings" of 10,000 to 25,000 activity were also employed. The radium contained was held in the water within from 1 to 3 mm. of the organism under observation. Under these conditions no visible effects were produced, by even the strongest radium preparations, during periods of observation of about an hour. The water surrounding the animal may have prevented radiant effects.

The Effects of Intravenous Injections of Radium Bromid.—By Russell Burton-Opitz and G. M. Meyer, of the Physiological Laboratory, Columbia University. These experiments, dealing principally with the effects of radium bromid upon the circulation and respiration, were performed upon dogs weighing from four to five kilograms. Light ether-narcosis was employed. The solutions injected contained 1.8 mg. of radium bromid per cubic centimeter of distilled water. Preparations of radium bromid of 240, 1,000 and 10,000 activity were used. The facial vein was selected for the injections. The results were of a very uniform character, whether radium bromid of a high or low activity was employed. The injection was always followed, after a latent period of about five seconds, by a gradual and well-marked increase in blood pressure, this rise evidently being caused by general vaso-constriction. Soon, however, a marked decrease in the frequency of the heart, accompanied by a pronounced irregularity, causes a fall in pressure. Contractions in which the diastolic phase is extremely conspicuous interchange with a series of forcible preeminently systolic beats. It need hardly be mentioned that under these conditions the variations in blood pressure are extreme. These effects of radium occur also after both vagi have been divided. These

* Each of the collaborators has written the report of his own share of the investigation.

1 Proceedings of this society, December 21, 1904.

circulatory changes are accompanied by a gradual decrease in the frequency of respiration, terminating finally in complete respiratory paralysis. This effect precedes the total inhibition of the heart.

Much more rapid and precise effects were obtained with radium bromid of high activity (10,000) than with that of lower activity. In general, 0.5 mg. of the 10,000 activity (per kilo of body weight) sufficed to produce as decided an effect as 5.0 mgs. of the 240 activity (per kilo of body weight).

Practically all preparations of radium salts contain barium. In order to check the effects of such impurities, the authors carried out a number of comparative experiments with pure barium bromid. It was found that the effects of radium bromid preparations of low activity (240 and 1,000 activity) differ only quantitatively from those of barium bromid. Certain amounts of such radium preparations produce effects that can be obtained only by correspondingly larger amounts of barium bromid. The influence of barium in causing pronounced irregularity of the heart is not evidenced by the preparations of radium bromid of 10,000 activity; only a decided inhibition results, which is accompanied by a decided rise in blood pressure.

The Radio-activity of the Different Organs after Injections of Radium Bromid.—By Gustave M. Meyer, of the Laboratories of Physiological Chemistry and Physics, Columbia University. The radio-activity of the different organs of dogs experimented upon was determined by two methods. For an approximate estimation of the radio-activity, gold-leaf electroscope has been found very serviceable. In this case, it is only necessary to thoroughly dry the finely divided organ and note the rapidity with which the charged gold leaf descends. The use of the quadrant electrometer admits of a more exact valuation of the radio-activity. The organ is incinerated and the radio-activity of the ash determined. The determinations thus far made have been entirely upon the dogs used in the experiments of Opitz and Meyer[1]. The following parts have been examined: blood, liver, lungs, kidneys, spleen, pancreas, brain and muscle. Of these the blood showed the greatest activity, while the brain has so far given negative results.

The Influence of Radium Bromid on Metabolism in Dogs.—By William N. Berg and William H. Welker, of the Laboratory of Physiological Chemistry, Columbia University. The experiments are being carried out on dogs in nitrogenous equilibrium. Radium bromid preparations of 240, 1,000 and 10,000 activity have been employed. Thus far introduction has been by mouth only. One animal (6.6 kilos) has been fed 1.100 gram 240 activity, 0.250 gram 1,000 activity and 0.125 gram 10,000 activity in small amounts daily (during twelve days) without the appearance of any gross symptoms except diarrhea during the period of the administration of the preparation of 240 activity with its large content of barium. Proteid metabolism did not appear to be materially affected. Total sulphate (SO_4) in the urine was markedly increased, especially during the period following the administration of the preparation of highest activity, and when diarrhea as well as constipation was entirely absent.

In control experiments with barium bromid, much larger quantities per os (as much as 0.5 gram daily to a dog weighing only 4.5 kilos) were without any gross symptoms whatever. In the case of barium, also, proteid metabolism was practically unaffected by the quantities used. The quantity of total sulphate in the urine, unlike the result with radium, appeared to be practically unaffected by the barium bromid.

Other determinations are being made and injection experiments are in progress.

2 Injections as well as feeding experiments are in progress.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Stated Meeting, held June 14, 1905.

The President, James M. Anders, M.D., in the Chair.

Exhibition of Cases of Goiter; Suprapubic Cystotomy for Calculus; Entero-Anastomosis for Cancer of the Cecum; Perforated Gastric Ulcer; Posterior Gastro-Enterostomy for Ulcer; Gastro-Enterostomy for Carcinoma.—Dr. William L. Rodman presented these cases. The first was that of a young woman, aged twenty-two years, who had suffered for a few years from dyspnea, difficulty in swallowing and some evidence of congestion about the brain from pressure on the vessels of the neck of a large tumor. Operation was attended with but slight hemorrhage, and she left the hospital within a week. The second case was that of an elderly man in whom operation was successfully performed. The X-rays failed to reveal the stone. The patient in the third case made a perfect recovery. Numerous cancerous growths were present in the cecum. At the time of operation the symptoms of obstruction were complete, and the patient had vomited feces for a day. Radical operation was out of the question, and an entero-anastomosis of a distended ileum was made. The fourth case, a young man of twenty-two, had had ill-defined symptoms of dyspepsia for a year or two, but without the classical symptoms of ulcer. A few hours after seizure with profound colic and shock he was operated upon, and an ulcer was found on the anterior wall of the pylorus. An opening in the ulcer had been closed by omentum, and there had not been at the time a great amount of extravasation. Notwithstanding the development of a severe peritonitis, recovery ensued. The point of special interest was the absence of symptoms pointing to gastric ulcer, and the occurrence of rupture in connection with a latent ulcer.

In the fifth case diagnosis of gastric ulcer had been made some months previous, but operation was deferred until the condition of the kidneys was improved. Two old ulcers at the pylorus were found, one on the anterior and one on the posterior wall. An increase of from ten to fifteen pounds in weight, and the disappearance of all gastric symptoms, were the results of the operation. The sixth patient was a man aged fifty-five years, whose first dyspeptic symptoms appeared in September last. At that time he weighed 190 pounds. Six weeks ago his weight was 117 pounds. Opening of the abdomen revealed a large amount of carcinomatous material. Anastomosis was made by direct suture, eliminating the loop. There has been absolute relief of symptoms with a gain of 25 pounds in weight.

Fractures of the Head of the Radius; Report of Two Cases.—Dr. T. Turner Thomas contributed a very carefully prepared paper upon this subject, and exhibited numerous specimens, the result of his experimental study. He stated that vertical fracture of the head of the radius, chipping off a portion of the radial rim, is both atypical and

frequent fracture. Since it is always intracapsular, limitation of motion must always be expected during the healing process and for a variable period afterward. Non-union is rare, due to the admirable splinting effect of the orbicular ligament and the resulting close approximation of the fragments. For the same reason, Dr. Thomas believed that crepitus, deformity and mobility of the fragments on each other were usually absent, both fragments rotating together within the ligament. In the first case reported, the diagnosis was made by skiagraph; in the second, from the localized symptoms and the marked limitation of motion, especially of pronation and supination. In the first case, in which fracture occurred nearly two years ago, return of function was almost perfect, lacking only to a slight degree full extension. The second case, after about four months, lacks only in extension.

Dr. Thomas stated his belief that fractures of the neck of the radius were also much more common than has been supposed, and almost always associated with fracture of the head and impaction of the shaft into it. Both varieties of fracture, he thought, were almost always due to falls on the hand.

Dr. George E. Pfahler believed that the character of fracture under discussion was more frequent than generally suspected, and referred to ten cases he had seen in a series of 500 fractures. He did not think that an error need often be made in finding the fractures by radiodiagnosis.

Dr. M. K. Kassabian called attention to some lantern slides of the fracture. He has found less difficulty in taking skiagraphs of the fracture than intimated by Dr. Thomas. The technic has been so improved that there is shown not only the shadow of bone, but the structure, with any accompanying disturbance. Epiphyseal separation of the head of the radius, he stated, was often mistaken for fracture.

Dr. John B. Roberts considered Dr. Thomas' contribution of much interest, and asked that the experimental fractures be presented to the Mütter Museum.

Dr. L. J. Hammond suggested that experimental fractures would not take place under conditions present in the living subject. He did not regard fractures about the joints as serious as he had been taught to believe, and did not hesitate to leave a fracture of the elbow joint immobilized for three or four weeks, after that removing the dressing every day or two. With this method and the employment of passive motion, he has not seen loss of joint motion in simple fracture. The skiagraphs did not seem to him valuable as working principles to the surgeon inexperienced in X-ray work.

Dr. Thomas, in closing, referred to the liability of error in diagnosis by skiagraphy, but also recalled cases in which diagnosis of fracture of the head of the radius was only made by this method. He expressed his willingness to place the fractures in the Mütter Museum, and in regard to Dr. Hammond's suggestion, he pointed out that in experimental work the fracture occurred always at the same point, where the joint was weak, and that this was also true of the living subject.

Perineal Prostatectomy Performed with the Aid of Young's Tractor.—Dr. Moses Behrend, after a short review of the history of prostatectomy in general, reported the history of his case operated by the perineal route according to Young's method. The patient was seventy-five years of age, and made a good recovery. Age was considered not to be a contraindication of operation. He believed that the percentage of cures far exceeded the failures, that, though the prostatic urethra may be destroyed, the normal function returns. He concluded that sounds were not necessary, but advisable, and that the mortality was remarkably low when the type of case was considered.

Cervical Rib with Resulting Gangrene of the Fingers.—Dr. W. Wayne Babcock emphasized the importance of searching for a cervical rib in cases of paresthesia, anesthesia or persistent ischemia involving the hand, arm or shoulder, and reported a case in which circulatory changes first noticed at thirteen progressed until gangrene of the fingers resulted at the age of twenty. At the age of twenty-two the patient suffered pain of an unendurable character, which prompted him to seek operative relief for what was supposed to be severe frostbite. Excision of the rib was followed by a rapid amelioration of the pain and a more gradual return of the radial pulse.

BOOK REVIEWS.

OPERATIVE SURGERY. By JOSEPH D. BRYANT, M.D., Professor of the Principles and Practice of Surgery, Operative and Clinical Surgery, University and Bellevue Medical College; Visiting Surgeon to Bellevue and St. Vincent's Hospitals; Consulting Surgeon to the Hospital for Ruptured and Crippled, Woman's Hospital, and Manhattan State Hospital for the Insane; former Surgeon-General of N. G. N. Y.; etc. Fourth edition. D. Appleton & Company, New York and London.

IN the year 1886 the first edition of Bryant's Operative Surgery appeared, and immediately won universal recognition as a work of the highest authenticity and validity. Since that time it has run through many issues and has undergone three revisions, a fact which sufficiently speaks for its great popularity and wide distribution.

It is to be noted that the present fourth edition has been carefully gone over, numerous passages have been rewritten, much new matter has been added, new illustrations included and the old ones perfected, all of which goes to bring the work as completely abreast modern surgical attainment as is possible in a text book.

Dr. Bryant has the power of expression whereby he is able to set down facts in few words, and yet with such directness of thought that the reader comprehends the meaning clearly without strain or difficulty. Although his surgical training has been of the broadest, he is not content with presenting a book of personal experience alone, but incorporates in his work all the diverse opinions and procedures now in use.

The work as formerly embraces two volumes. The first volume is devoted to general surgical principles; operations upon the blood vessels, nerves, fibrous structures, muscles and bones; amputation; deformities; plastic surgery, and operations upon the mouth, pharynx, nose, oesophagus and neck.

It is difficult to detect from a volume of such uniform strength a section of paramount value, but all things considered the chapter on plastic surgery perhaps deserves this distinction. Certainly a more instructive and comprehensive statement of the subject can not be found; and this field, as is well recognized, is one which taxes most severely the ingenuity and proficiency of surgeons lest their efforts prove a deadly boomerang.

The second volume is almost entirely devoted to visceral surgery, which after all is chiefly considered by general surgeons. Here the highest authorities are fluently quoted and the final choice of operation, as generally indicated, is backed by the logical conclusions and experienced judgment of the author. This part of the work is unusually broad, even encyclopedic in its scope, but is at no time verbose.

Throughout the work the necessary surgical anatomy is copiously supplied, being largely incorporated in the general considerations, which tend to illuminate its natural dryness and show the practical application, thus stimulating a more ready memory.

A feature of the illustrative portion is the disclosure collectively of the generally employed instruments for the various types of operative technic.

A clear idea of this masterly contribution for the general advancement of surgical science can be derived only from a long and intimate acquaintance. It needs no further commendation than that in its present edition it will still maintain that position in the forefront of the most valued surgical literature which it has so long held.

The American Year-Book of Medicine and Surgery, 1903. Volume—Surgery. Edited by George M. Gould, M.D. W. B. Saunders & Company, Philadelphia and London.

The American Year-Book Surgery for 1905 follows closely the general characteristics of its predecessors in this series. The editors have attempted to present abstracts from all of the reported work of the past year, which, in their judgment, was either sufficiently meritorious or sufficiently interesting.

So much of the genuinely scientific and practical has been accomplished that it has been necessary to carry condensation to the extreme, a fact which at times conspicuously interferes with the clarity of the treatment of the subject. This is especially noticeable in the references to the ingenious work of McGraw and Maury relative to intestinal anastomosis by means of ligaturing.

The absolute futility of a perfect hand sterilization by means of the numerous methods now in use, and there are almost as many as there are surgeons, is shown by the conclusions derived from the exhaustive work of Ludham-Green. This should be read and thoroughly digested by all those who consider rubber gloves an unnecessary evil.

For general excellence of detail, symptomatology, operative indications, and post-operative managament, the chapter upon appendicitis is perhaps the most complete in the volume. Also, the chapter devoted to hernia is authoritative and deserves comment.

It is to be noted with pleasure that the true therapeutic availability of the Roentgen ray and of radium is thoroughly discussed. This article should assist to counteract the promiscuous, unintelligent and often unwarranted administration of these two very much overrated agencies to a trusting but uninformed public by whom they are largely regarded with something akin to superstitious awe.

Much interest will be manifested in the new field opened up through the study of syncytiolysis, by which a better knowledge relative to fetal nutrition has been gained, and which may give a clearer understanding of the etiology of eclampsia.

Throughout the book many new operative methods are described, which no doubt will prove of certain usefulness.

The general utility of the volume can not thus be fully shown. Suffice it to say that it presents the easiest, most ready and authentic means of keeping in touch with the rapid advances accomplished in the surgical field.

Chemical and Microscopical Diagnosis. By Dr. Francis Carter Wood. D. Appleton & Company, New York.

During the past few years developments from the study of clinical microscopy have gone forward with such rapidity that the medical profession at large has experienced difficulty in keeping abreast.

In this volume the author has presented his subject clearly and ably, emphasizing the laboratory methods which are of practical value, and of which every student of medicine should be cognizant. To those procedures the ultimate practicability and clinical merit of which yet remains to be proven he devotes sufficient space to delineate the facts according to the face value of our present day knowledge.

The arangement of the book is admirable. The first division has to do with the study of the blood, the text of which is enhanced by numerous and beautiful illustrative plates—especially to be noted are those showing the malarial cycle which have been stained by means of the author's modified chromatin stain. The chapter dealing with serum reactions is of especial interest. Following this, in order, are taken up the diagnostic features as presented by the study of the Gastric Contents, Feces, Animal Parasites, Sputum, Urine, Transudates and Exudates and Milk, to all of which sufficient space is devoted for an authoritative discussion. Finally, the author briefly reviews, in an appendix, the preparation of the various staining fluids.

One of the most commendable features of the book is the excellent halftone microphotographic reproductions which compose the majority of the many illustrations.

It may be said without reserve that this is one of the best works on diagnosis by an American author, and not only will be a valuable text-book for students but it will be welcomed as a library reference by every practitioner of medicine.

BOOKS RECEIVED.

The Medical News *acknowledges the receipt of the following new publications. Reviews of those possessing special interest for the readers of the* Medical News *will shortly appear.*

Des Grossesses Tubaires Meconnues. By Dr. Henri Bazalgette. 8vo, 191 pages. Vigot Frères, Paris.

Transactions of the American Pediatric Society. Sixteenth Session. Volume XVI. 8vo, 296 pages. Illustrated.

Diseases of Metabolism and Nutrition. By Dr. Carl von Noorden. 8vo, 86 pages. E. B. Treat & Co., New York.

The Crux of Pastoral Medicine. By Rev. Andrew Klarmannn. 12mo, 164 pages. Fr. Pustet & Co., New York and Cincinnati.

Progressive Medicine. Edited by H. A. Hare. Vol. II, June, 1905. 8vo, 346 pages. Lea Brothers & Co., Philadelphia and New York.

Clinical Diagnosis and Urinalysis. By Dr. J. R. Arneill. 8vo, 244 pages. Illustrated. Lea Brothers & Co., Philadelphia and New York.

A Text-Book of Medical Practice. Edited by Dr. Wm. Bain. 8vo, 1,011 pages. Illustrations. Longmans, Green & Co., New York, London and Bombay.

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ORIGINAL ARTICLES.

A TEST OF CONDITION: PRELIMINARY REPORT.

BY C. WARD CRAMPTON, M.D.,

OF NEW YORK.

Introduction.—This report is given to the medical profession in its preliminary stage, after the work of a year and a half; so that it may become immediately available for use and perhaps the earlier subject to modification and improvement. The importance of the principle involved, however, cannot be overestimated.

Importance.—There does not exist to-day a reliable test of condition, although its need is felt in very many quarters. The physician would be glad to know accurately what the real condition or relative degree of health is in the patient who comes under his care for the first time. It is of the utmost importance for him to know to what extent the trouble complained of affects the general health and vitality. It would give him a real guide on which to base his advice to the overworked or run-down in prescribing a treatment of tonic, rest or exercise. It would give him a real method of determining the increase of health resulting from such treatment. "Feelings," cannot always be relied upon. To the prospective employer, military, civic or mercantile, the condition of the applicant, if accurately determined, would be of vital importance. To the psychologist an accurate test of this sort would serve as a basis for definite comparisons between mental and physical efficiency, at present almost an impossibility due to the meager information of physical condition obtainable by the tests now in use. To the educational expert it would give a basis for determining the effect of the various hygienic or unhygienic features of our modern school curriculum. To the physical trainer, the worker in practical hygiene, it would give a means of noting actual progress in the most important part of his work and of measuring his success in producing the condition of health. To the athletic instructor, the coach, the oarsman and the prize-fighter it would furnish what had long been sought, an indication of success of methods of training.

During the course of an investigation on the effects of muscular contraction on blood pressure the writer elaborated a test that promises to be useful in the way indicated. In brief, the test consists in the comparison of the systolic blood pressure and the heart rate of the recumbent position with those of the standing position. The physiology involved is as follows:

On assuming a standing position the voluminous splanchnic veins are constricted by the vasomotor action of the splanchnic nerves. If this contraction is effective against the increased pressure brought to bear through the gravity, the blood pressure in the upper body rises. If it is ineffective, it fails to rise or actually falls. This accounts for the great disparity of opinion on this point, some observers finding a regular rise of 10 to 15 mm., others finding no average change, others a fall, when the standing position is assumed after the recumbent. This is an indication therefore of the efficiency of the splanchnic vasomotor mechanism which is not only important but essential to life. Upon its successful working depends the blood pressure in the brain, on the maintenance of which depends not only consciousness but the working of every function of the body and even life itself.

This mechanism is the latest in the body to develop, appearing as it has only after man has taken to the erect position. It is very easily wearied by lack of sleep, by work and by any unhygienic proceedings in general; even the routine of our daily life exhausts it to a greater or less degree. The *total* abrogation of its functions leads to the accumulation of the blood in the abdomen, the exsanguination of the rest of the body, and death. It is a very fair presumption that the working of this most important function upon which depends blood pressure, the distribution of the blood, and the working of the brain will be an indication of the condition of the body as a whole and an index to its general efficiency.

Should this be so, we shall have arrived at the end of our investigation and it will only remain to observe the rise or fall of the systolic pressure to estimate the condition of the individual. Another factor, however, enters into consideration. When the blood pressure tends to fall, the heart rate is accelerated. This is associated with a rise in pressure which masks the inefficiency of the splanchnic contraction. This is apparently a conservative mechanism in the nature of a second defence against a fall of blood pressure. Clearly then we must take into account the amount of acceleration of the heart as well as the rise or fall of blood pressures when we estimate the amount of relative failure of the splanchnic contraction.

This state of affairs in our ideal "condition" would be, a maximal rise of blood pressure with no acceleration of the heart on standing, evidencing such a complete working of the splanchnic mechanism that the heart would not be called to help raise the blood pressure. When, however, we observe the same rise of pressure accompanied by the increase of heart rate we must infer a relative insufficiency of the splanchnic mechanism on account of the calling of the heart to help.

Hence a poorer condition. Similarily, we would not consider the splanchnic mechanism as failing so badly should the blood pressure fall alone as in case it should fall and the heart be considerably accelerated. The latter condition would demonstrate the falling of pressure in spite of the assistance of the heart, hence a greater degree of failure.

We may not perhaps with perfect accuracy be able to balance these two factors and determine how much a fall of 1 mm. in pressure signifies in terms of increase of heart beats a minute. We shall arrive approximately at the truth, however, if we assume that the respective limits of their total ranges coincide. We may then divide each total range into fractional parts each of equal significance and of balanced importance.

The total change of blood pressure in those who may be considered "in health," is from plus 10 to minus 10 mm. Hg. That of pulse rate is plus 5 to plus 35. We may divide our range into fifths and construct the following tentative scale, in which the letters constitute the index to the splanchnic efficiency:

	Blood-Pressure Increase:	+10	+5	0	—5	—10
Increase in Heart Rate:	5	A	B	C	D	E
	12	B	C	D	E	F
	20	C	D	E	F	G
	28	D	E	F	G	H
	35	E	F	G	H	I

Interpreting this scale, we would have with an increase of 10 mm., if occurring with only five increase of heart rate, the index A, the best possible condition if accompanied with an increase of 35, and index of E, etc.

By the term splanchnic circulation we should properly mean the arterial branches of the celiac axis, their branches and capillaries, with the radicles of the portal vein. This system is partly arterial and partly venous and it is to the venous portion that attention is to be called more particularly; the arterial portion and the capillaries present features very similar to like structures in other parts of the body whereas the venous portion presents features of extreme and novel importance. During the course of this work, however, when the splanchnic area is referred to, it will be understood that the portal vein and its radicles are meant particularly.

The Capacity of the Splanchnic Area.—The veins of the splanchnic area share with other veins of the body (which are not supported by rigid structures) the features of collapsibility. On this account the blood content of the total splanchnic area may therefore be very great or very small, in fact the veins alone may, under certain conditions, contain nearly all the blood of the body. Hill and Barnard[1] found in the dog, in the vertical, feet down, position that the cutting of the cervical cord causes the pressure in the aorta to fall to zero and practically the whole of the blood to be collected in the splanchnic area. Squeezing the abdomen brought back the aortic pressure to the normal. Hill worked with rabbits, suspending them without any operative interference in the vertical, feet down position; death invariably resulted in a short time. If the blood were kept from draining into the abdomen by a tight band, no inconvenience was suffered. If the rabbits were suspended in the head down position no bad result followed. These items serve to illustrate the great capacity of the splanchnic reservoir. The importance of this great capacity is demonstrated by the experiment of tying the aorta first below the celiac axis, and, secondly, above it, in an animal with the cervical cord cut. In the first instance practically no effect on aortic pressure is observed, in the second a very considerable rise is obtained.—Ludwig and Thiry.[7]

The Control of the Capacity of the Splanchnic Area.—Nervous.—(1) Splanchnic nerves, (2) vasomotor center, (3) reflex stimulation. Mechanical—(1) External pressure, (2) tone of abdominal walls, (3) aspiration of thorax, (4) respiration.

1. *Splanchnic Nerves.*—Mall[2] observed the direct influence of the splanchnics upon the portal vein. He obtained a contraction of the vein that could be easily noted by the eye. V. Besold and Gscheidlen[3] proved much earlier that the systemic veins had a vasomotor system and were controlled in a similar manner to the arteries. These investigations prove conclusively a somewhat neglected fact that the veins of the splanchic area have a tone as well as the arteries. That the splanchnic nerves are in the main vasoconstrictor in their function is shown by the dilatation of the splanchnic vessels on section of the nerves. This dilatation may be measured with some accuracy by the variations in the aortic pressure. The greater the room made for the blood in the splanchnic area, the lower the pressure will fall.

Hill has given the result of the action of the splanchnics in the experiment already quoted. Ludwig and Cyon[4] found that section of one nerve caused a fall of aortic pressure of 30 to 50 mm., the section of the other 8 to 10 mm. more. In every case the section was made by lumbar incision so that the opening of the thorax and abdomen were avoided. Asp[5] found that after section of both these nerves tone was partly regained in about two weeks, showing a taking up of the function by other branches of the sympathetic system.

Bayliss and Starling[6] have found that the third to the eleventh anterior thoracic roots contain the fibers which affect the splanchnic area. By excising these roots they caused (1) an abrupt but ephemeral rise of pressure in the portal vein due to the constriction of the mesenteric arteries, (2) a fall, due to this same constriction, (3) a rise, due to the constriction of the hepatic branches of the portal vein.

According to Bever and v. Besold[6] section of the cervical or the upper dorsal cord does not produce any further material lowering of blood pres-

sure after the splanchnics have been cut. V. Besold[8] found that by stimulation of the peripheral end of the cut cervical cord he was able to send up the blood pressure to seven times its normal height. Work by Hill and Barnard (*op. cit.*) would seem to indicate that since the splanchnic area was robbed of the support of the abdominal walls paralyzed by the section of the cord and not affected by the cutting of the splanchnics, we would expect therefore a greater filling of the veins and a greater decrease of pressure, after section of the cord than after section of the splanchnics alone. One of their experiments shows that with the splanchnics cut the blood pressure fell considerably when the abdomen was subsequently opened by a crucial incision.

2. *Vasomotor Center.*—The vasomotor center has been located in the medulla oblongata. It can be excited in two ways (1) by variations in the central blood pressure, (2) by reflex stimulation. A fall in cerebral blood pressure, *i.e.*, cerebral anemia, will cause a stimulation of the center, a consequent vasoconstriction and a rise in pressure. A rise in cerebral pressure will cause the reverse.

There are subsidiary vasomotor centers in the spinal cord and even local centers outside the central system; on this account we may have local conditions of vasotone entirely independent of the general condition.

3. *Reflex Stimulation of the Splanchnic Area Through the Vasomotor Center.*—Any nerve, save the depressor nerve, when cut and the central end stimulated, will effect a stimulation of the vasomotor center and cause a rise in pressure. Some nerves, under certain conditions, are proven to carry depressor fibers and their stimulation will result in a fall of pressure. (Howell [10] Reid Hunt.[11]) The depressor nerve when stimulated will cause a marked lowering of blood pressure and a decrease in heat rate, through its effect upon the medullary vasomotor center.

Mechanical Factors.—We have already noted that the mechanical squeezing of the abdomen will increase the blood pressure in rabbits and dogs, in the vertical feet-down position. The writer has called attention to the same effect obtaining in man in the sitting position when the knee is crossed and the abdomen compressed mechanically by the leaning over. It was found in a subject in poor condition that the blood pressure in the radial artery (held at the height of the ensiform) was greater when the abdomen was thus compressed than when the erect sitting attitude was assumed.[12]

Rowe[13] has noted quite empirically that long-continued study cannot be accomplished when "sitting up straight," and that the characteristic attitude of study—bending over at a desk or bending over with the knee supporting a book is conducive to the success of long-continued work. The effects of attitudes are discussed by Rowe and the blood pressures noted, and the results obtained would lead to the conclusion that the difference in mental ability noted by Rowe were due to blood pressure changes. Treves[14] has noted in enteroptosis that the symptoms often relieved by merely pressing upon the abdomen with the hands and that "many patients are unable to move about until they have adjusted their supports or bands." Bowen,[15] in a very complete work on the effect of exercise upon blood pressure, found that the pressure was raised during the whole of the exercise. Oliver[16] on the contrary found that while blood pressure was raised at first by exercise it fell rapidly if the exercise was continued. The difference in the results obtained by these two investigators is no doubt due to the difference in the exercise. In bicycling the position is somewhat flexed and the thighs press rhythmically upon the abdomen, by this means the splanchnic circulation is kept within bounds and the blood pressure is kept up. In walking, on the other hand, there is no such support and the blood drains rapidly into the splanchnic circulation. Oliver (*op. cit.*, p. 163) has proven conclusively the drain into the splanchnic area during continued exercise of this nature, namely, walking, and the fact that continued bicycling two hours and forty-five minutes does not allow of any drain. He found that after bicycling a pressure of twenty-two pounds distributed over the abdomen caused no rise in arterial blood pressure. After walking, on the contrary, one hour and thirty minutes, the same pressure caused a rise of 20 mm. The writer has verified these experiments. De Jager[21] finds that pressure on the abdomen has but little effect upon the abdominal arteries while it serves to express a large quantity of blood from the splanchnic veins.

The Effect of the Tone of the Abdominal Walls Upon the Capacity of the Splanchnic Area.—Hill and Barnard (*op. cit.*) have shown the value of the abdominal wall as a support to the circulation. In a dog suspended in the vertical, feet-down position, with the splanchnic nerves divided, the pressure fell markedly when the abdomen was opened. The slightest decrease in the tone of the abdominal walls will be followed by a decrease in intra-abdominal pressure. The cutting of the spinal cord for this reason causes a greater lowering of blood pressure than the mere cutting of the splanchnics, as has been already noted. Evidence is not wanting on this point. Treves (*op. cit.*) states that the greater part of the symptoms usually found with enteroptosis are due to the relaxation of the abdominal veins due to the decrease of intra-abdominal pressure caused by the loss of tone of the abdominal walls. Massage causes a direct emptying of the splanchnic vessels and an increase in blood pressure.[17] Quirin[18] finds that increase of intra-abdominal pressure brings up the pressure in the arteries merely by displacing the blood from the abdomen. Oliver (*op. cit.*) finds intra-abdominal tension decreased and associated with vasomotor

inability, in many forms of impoverished nutrition, chronic goutiness, anemia and neurasthenia.

The action of the abdominal muscles in maintaining intra-abdominal tension and the means of testing their efficiency have been well worked over by Harry Campbell.[19] Campbell lays particular stress upon the function of the transversalis as a constricting band shutting off the upper from the lower abdomen. The recti are described as separated in the infant and nominally close in the adult. In the male in good health the abdomen is flattened by their action; in the female this takes place, but the contour becomes rounded, due to the accumulation of subcutaneous fat.

The Effect of Respiration and Aspiration of the Thorax Upon the Capacity of the Splanchnic Area.—It is to be noted in Hill's experiment, previously cited, that opening of the thorax, after the splanchnic nerves had been cut, and the abdomen opened, caused a further fall of blood pressure; demonstrating the effect of the thoracic aspiration upon the return of blood from the abdominal veins. Leyden and Quincke[20] have found the negative pressure in the pleuræ to be as low as —42 mm. Campbell gives the following table of minus pressures in the pleural cavity:

At the end of an extraordinary expiration.— 0
At the end of an ordinary expiration....— 5 mm.
At the end of an ordinary inspiration....—10 mm.
At the end of an extraordinary inspiration.—30 mm.

Donders[21] gives the following results:

In position of ordinary quiet inspiration..—9 mm.
In position of ordinary quiet expiration.....—7.5
In position of deepest inspiration.....—30 to 40

This minus pressure is due to the elasticity of the lungs pulling against the comparatively rigid chest wall. This pull or suction has wide variations. In the infant it is practically nil, as the lungs fit the chest cavity with little or no tension of stretching. In old age the lung ordinarily becomes permanently stretched and fails to produce the suction evident in ordinary conditions. All organic diseases of the lungs—bronchitis, pleurisy and tuberculosis—diminish it, and in emphysema, it is reduced to a minimum. In fevers, as in typhoid and diphtheria, it is diminished. The bulging of the chest in pneumonia is due not ordinarily to a positive internal pressure, but to a diminution in the negative pressure.

This elasticity of the thorax is a factor in determining the amount of pulmonary suction actually efficient upon the circulation of the abdomen. The suction cannot be greater than the elastic resistance of the thoracic wall. In early youth this elasticity is greatest and the negative pressure lowest. It is at this time that any weakening of the thoracic wall from malnutition gives us the familiar result of a depressed sternum, and its exaggerated form, the "Trichterbrust." In adult life, however, the rigidity of the chest wall has become established, pulmonary suction is finally resisted, and becomes effective, as a potent factor not only in causing the upward flow of blood from the splanchnic area, but in causing the return of the lymph and the blood from the azygos and upper body veins.

It is evident that the variations in the negative pressure of the chest cannot fail to cause variations in the rate of inflow of blood to the thorax. We shall expect during inspiration an increased inflow, and during expiration a decreased inflow; also, owing to the same reason, we should have a decreased outflow during inspiration and an increased outflow during expiration. This should cause the chest to contain more blood at the end of inspiration than at any other time. Heger and Spehl found that the lungs contained 1-13 to 1-12 of the total blood in inspiration, and only 1-15 to 1-18 in expiration. Hill[24] concludes that "in natural breathing the air and the blood volume change together and in the same way."

From the foregoing facts it is evident that the respiratory mechanism is most potent in returning blood from the splanchnic veins.

The Effect of Variations in Splanchnic Capacity Upon Blood Pressure.—Arterial blood pressure depends primarily upon the force of the heart beat, the volume output per beat, the rate of beat, and the peripheral resistance. Turning to the cardiac conditions alone we should observe that, other things being equal, the greater the output per beat the greater will be the arterial pressure; also, the greater number of beats per minute the greater will be the pressure.

All combinations of these factors are possible. The stimulation of the vagus will cause a slower beat and a diminished output per beat. By stimulation of the accelerator nerves in the dog, Woolridge[25] obtained an increase of output per beat and a consequent rise in pressure without any acceleration. Munzel[26] and Roy and Adami[27] obtained an acceleration of the heart without any increase in blood pressure.

Roy and Adami (*op. cit.* and [28]); Howell and Donaldson (*op. cit.*); Tigerstedt[29] and others have found that the heart output depends largely upon the amount of blood available to the heart in the great veins. Anything increasing this amount of available blood causes a rise in pressure. Abdominal massage, abdominal constriction, muscular exercise, etc., all cause this result by constricting the splanchnic area.

Any factor causing a decrease in splanchnic tone, such as warm baths, fatigue, disease, exercise (second stage) will cause a lessoned venous inflow, a decreased output and a lowered blood pressure.

The importance of this mechanism in controlling the blood pressure has but recently been exploited, and has hardly reached the text-book stage. That the splanchnic mechanism is a most potent one, may be seen by the fact that excitation of the splanchnic nerves will produce a greater arterial pressure than the closure of the thoracic aorta with a clip[30], and also by the

fact that the complete failure of its vasoconstriction means the collection of practically all the blood of the body within its veins. Recent work by Romberg and Pässler,[31] and Pässler and Rolly,[32] goes to prove that death from diphtheria and pneumococcus septicemia is due not to cardiac failure, as hitherto believed, but to vasomotor paralysis, and that the heart at death is still able to contract. Patients may thus be treated with vasoconstricting elements, instead of cardiac stimulants.

The Method of Using the Test.—The patient is directed to lie down flat upon a couch with no head rest. The armlet of the blood pressure instrument is then placed around the upper arm. This should be arranged so that it bears the same relation to the heart lying as it will when the patient is standing, so that no hydrostatic error will be included. Absolute quiet is insisted upon, relaxation of the muscles is necessary, and all emotional disturbances should be guarded against. The pulse rate is then taken by quarter minutes for at least four successive quarters. These should be recorded until we arrive at a plateau in which the heart is steady, the indication of which may be taken to be the point where four records show no decrease. These four records forming a minute's record should be noted for comparison with the standing rate. Without releasing the grip on the radial artery, the systolic pressure should be taken.

This should be taken twice, and if any large difference is noted, a third time; and the average struck. If there is any considerable variation noted, it may be due to several disturbing factors, such as an uncomfortable position, emotional disturbances, nervous muscular contractions, holding the breath, etc., all of which should be eliminated. These items recorded, the patient is allowed to stand and the same records taken in the same way with the same precautions.

It is important that the pulse rate should be allowed to fall to its standing normal after rising, for it is accelerated by the muscular act of getting up. The blood pressure also rises considerably at first (though it may fall), but it strikes a balance as a rule a little before the pulse rate does. We may now compare our results and arrive at a conclusion as to the condition of the individual. The whole test takes less than five minutes.

It is advisable at first to repeat the test and corroborate the findings of the first examination; with a little practice, however, a repetition is unnecessary.

Range of Results.—In "normal" cases the heart rate increase varies from 0 to 43, the systolic pressure from plus 18 to minus 12, the diastolic, from 0 to plus 18. Various combinations of these have occurred. The usual combinations are "regular"—that is, the rise in systolic pressures is in inverse ratio to the rise in the pulse rate; both factors being equally significant, for good or for bad.

Case I.—A., aged eighteen years; football player; weight 185 pounds; very muscular: 10:30 A.M.:

	Pulse rate.	Systolic Pressure.
Lying	58	120 mm.
Standing	58	132 mm.
Difference	0	+12 mm.

Estimation as per scale A+.

This shows the least possible increase in pulse rate, viz.: Zero with nearly the greatest possible increase in systolic pressure.

Case II.—S., aged thirty-five years; a teacher, athletic, "in good shape," after the school day, 3 P.M.:

	Rate.	Pressure.
Lying	61	110 mm.
Standing	85	110 mm.
Difference	+24	+0

Estimation as per scale E.

This case shows a considerable rise in heart rate, 24, approximately, the middle of the scale and coupled with it no change in pressure; also a middle term.

Case III.—V., aged seventeen years; quarter-back football team, "in good shape," according to his own statement; weight 125 pounds. At the end of the football season, 11.20 A.M., twenty minutes after a recorded amount of exercise:

	Rate.	Pressure.
Lying	68	100 mm.
Standing	104	94 mm.
Difference	+36	—6 mm.

Estimation as per scale H.

This case shows very great increase in pulse rate and a considerable decrease of pressure. A "regular" variation, and a very poor record.

In these cases just cited, each factor is proportionately as "good" or "bad" in its significance as the other. If this were the invariable rule it would be necessary to record but one of these factors, for the other would be easily calculated as in inverse ratio to it. This, however, is not the case, as the following "irregular" cases show:

Case IV.—S., aged seventeen years; athlete, weight 140 pounds; 11 A.M., "not feeling very fit," coffee with breakfast: walked one and one-half miles to school and took two periods of hard school work, one standing in laboratory.

	Rate.	Pressure.
Lying	64	128
Standing	72	118
Difference	+8	—10

Scale E.

This shows a slight increase in pulse with a marked fall in pressure. A "good" pulse rate increase with a "bad" fall in pressure.

Case V.—B., aged sixteen years; athlete, weight 130 pounds; somewhat overtrained; 11 A.M., simple breakfast, no exercise, two periods of easy school work.

	Rate.	Pressure.
Lying	68	100
Standing	104	110
Difference	+36	+10

Showing a great increase in rate—a bad feature; coupled with a considerable increase in pressure—a good teature.

Validity of Results.—A test of this sort can only at present be proven by empirical methods, and to these we must resort. There is no other way known to the writer whereby the efficiency of the splanchnic mechanism may be determined by which a comparison of results and a proof might be established. We can, however, test the efficiency of the individual and observe how nearly he will follow out our predictions as regards his "condition" in his athletic and other work. Should a man work poorly after this test has shown him an "A," with splanchnic mechanism presumably in good order, we should have cause to doubt the validity of the test. Also should a man whose record places him an "E" or below show up well, in athletic events or other strenuous work, we should again have reason to doubt our test. Such is not the case. Without exception the athletes who have so been tested by this method have *invariably and fatally carried out predictions*, even though ignorant of the meaning of the test.

A second method more easily followed out is the testing of these individuals whose condition and general efficiency is approximately known. Here, though we may meet with some surprises, the following are several cases typical but in no way selected:

1. In V., already cited as Case III, whose record was taken four times during the course of the day, his index ran G, G, H and H—during the day, his pulse increased 28, 36, his pressure fell from —2 to —12 at different times. On being questioned it appeared that he had not been sleeping very well, though he was in "good shape." He begged off from his physical training work of the afternoon and was absent the next week, having "caught cold and a fever."

2. *Case VI.*—T., teacher, aged thirty-two years; weight 190 pounds; athlete. Had six hours' sleep, hurried breakfast, "fair shape"; one of the twenty best tennis players in the United States, gave a record of +27 rate, and +6 mm. pressure at 8:30 A.M.; +19 rate and —0 mm. pressure at 3 P.M., both equal to E index. Played tennis at 4:15 to 6:15 with a very much inferior player; won the first two sets at 6—0, 6—3, lost the next three 6—8, 3—6, 0—6, demonstrating very conclusively his lack of "staying qualities" on this particular occasion.

Case S., quoted at Case II.—Ran three blocks after a car one-half hour before test, and felt somewhat dizzy on standing. "In poor shape," though a "10 2-5 man" in the hundred yards dash five years ago. At 8:30 A.M., pulse rate increased +36, pressure —12 mm., passed a miserable day, not feeling well.

Case VII.—F., coach of track team; fair athlete; "in fine shape." Test at 10:30 A.M., and gave an index F, with increase of rate +20 and pressure —7. A few days afterward ran a 220-yard dash; this was followed by a mild case of collapse, with the usual unloading of the stomach afterward.

These and many other cases show decisively that the estimations of poor "condition" are accurate. On the other hand, estimations of good condition have proven equally accurate.

The condition A is a somewhat unusual one, only three cases were found in an investigation of 38. One was Case I, already cited, the fullback of a football team, whose work shown as particularly successful on a very successful team. He was practically untiring, was never "laid out," and was a remarkable player in every way. The second was an assistant director of physical training who kept in the best of condition and was remarkably "long winded" in continued work, as in wrestling and basketball.

The third was a young man, a student of good, though not unusual mental and physical ability, a member of the track team, whose work was principally on the long runs, where he showed not a great deal of speed, but a consistent ability "to keep at it," though he was apparently not very strong.

Aside from this method of proving the validity of the test we may seek to prove it by taking individuals of a known condition and observe the correspondence of the results. This has been used and has given much information concerning the accuracy of the test. In a few cases where the findings of the test disagreed with the condition as predetermined, the case was not made out clearly in favor of the empirical methods, whereby the first estimation of condition was made. In several of these particular cases subsequent observations on these patients demonstrated the accuracy of the test as against the other methods used.

An interesting and an important item of proof of the validity of the construction of the scale and the balancing of the two factors was brought to light in an investigation on the condition at different periods of the day. It was found that in most cases the condition gradually became worse during the day, but each of the two factors might show a wide variation. The following case is typical:

Case.—R., aged seventeen years; member of track team, one mile, not very good runner but able to "finish" well. (See table on next page.)

Medical Aspects of the Test.—By the use of this test we can estimate in a real way the progress made in our chronic cases and the value of the remedies applied. It is inapplicable to any but ambulant cases, for rest in bed interferes with it strongly. A moderate amount of rest

	Increase in Pulse Rate.	Increase in Systolic Pressure.	Index.	Remarks.
9:45 A.M.	0	+10	A+	Silent well, no exercise.
10:50 A.M.	0	+ 4	A—	After a lesson in physics.
11:45 A.M.	+ 8	+12	A—	After lesson in algebra.
12:20 A.M.	+ 5	+ 6	B	After lesson in French.
1 P.M.	+ 4	+15	A	After lunch and rest; no coffee.
2 P.M.	—14	+16	A—	After history lesson.
2:25 P.M.	+16	+ 8	B—	After one-half mile slow run.
2:30 P.M.	+18	+ 8	B—	Fifteen minutes hard exercise.
2:38 P.M.	+18	— 8	B—	After five minutes rest, feeling tired.

in the run-down will increase the efficiency of the vasomotor mechanism, but long-continued rest decreases its efficiency, from disuse, to a marked extent. The fall of cerebral pressure and consequent syncope caused by even the sitting up in bed of a patient long recumbent is familiar to all. Its chief use in future will no doubt be in diagnosis of the amount of damage to the general vitality any hidden disease or any course of life has produced in the patient under our observation for the first time and also in the estimation of the progress made under our management.

In the guidance of our therapeutics we may look for a field of usefulness. It is not enough to know how a drug affects the blood pressure, which is but vague information, we must know how it affects that most important function, the vasomotor control.

The writer has applied this test to a number of hard-worked business and professional men who have come under his care, with most satisfactory results. In every case it formed an accurate and reliable index to real improvement. It was very much more steady in its readings than would be expected from the apparent variations in observed condition, which were extremely variable, but it seemed to check real improvement much more positively than could be determined by observation.

In one case of neurasthenia, in which a relative degree of sexual impotence was a symptom, the index followed the regaining of this function very exactly, and marked a relapse as accurately.

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INTUSSUSCEPTION.

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NOTWITHSTANDING the large per cent. of intussusception in the young, I find men to-day that are blind to such symptoms and children dying from the want of prompt action on the part of the attending physician. For instance, invagination tumors have been mistaken for prolapse of the rectum, for polypi or for hemorrhoids, and have been excised. It is more the purpose of this paper to bring out discussions on this subject, and impress upon us the importance of a thorough knowledge of intussusception, than to present any new thought that in my feeble way I might offer. Intussusception consists in the invagination of one portion of the intestine into another. It occurs most frequently in infancy, being at this age the most common cause of acute intestinal obstruction. The accident is not common, but the life of the patent generally depends upon its prompt recognition. The condition is nearly always a descending one, in contradistinction to the post-mortem invaginations, which are often ascending ones. The following varieties have been found: The ileocecal, in which the ileocecal valve passes down into the colon; the ileocolic, in which a portion of the ileum passes through the valve; the ileol, affecting the ileum alone; the colic, in which the colon is alone involved, and the colicorectal, affecting the colon and rectum.

The cause of 34 per cent. of intussusception occurring in children under one year of age, is in all probability the weakened condition of the walls of the bowels and in all cases the etiology is supposed to be irregular peristalsis. In most cases the ileum enters the cecum or the colon; less frequently the ileum or the colon or cecum enters itself, or the colon enters the rectum.

The mechanism of one form of intussusception was demonstrated by R. T. Morris, of New York, to the Philadelphia Medical Society. He exposed the ileum of a rabbit and it was observed that when it was touched with sodium carbonate, contraction of the circular fibers of the bowel at the point touched would take place in from fifteen to thirty seconds. The longitudinal fibers of the bowel, still carrying on peristaltic movement (a reversed peristalsis by the way), would invaginate that portion of the bowel which was in a state of firm contraction. He did not know the exact value of this experiment, except that it showed the mechanism of one form of intussusception. It is known that certain ptomains produce muscular spasm, and it is fair to assume that some cases of intussusception are due to a poisoning of the muscular fibers of the bowel, as in the experiment. In post-mortem intussusception, as he had watched it, there had been paralysis of the circular fibers of the bowel, and an adjacent segment of bowel had dropped into the relaxed portion, almost the reverse of the mechanism demonstrated in this experiment. We do not, however, stop to think just what mechanism formed the intussusception we have under consideration, but are we sure that it is a case of intussusception, and just what methods we shall pursue to bring about the desired relief? In a large number of cases it is impossible to determine the exact cause of the intestinal obstruction without actual exploration of the abdominal cavity; but intussusception is capable of more certain diagnosis than any other form of acute internal strangulation.

If there is a sudden seizure of severe abdominal pain with vomiting, and the pain is noticed to come on in paroxysms, and there is a frequent passage of mucus, and perhaps blood, too, from the rectum, and on examination an elongated tumor is felt, hardening up under the finger during each paroxysm of pain and then softening if not disappearing again, it is evident that we have a case of intussusception in the acute form. In some cases the end of the intussusception can be felt per rectum. When vomiting sets in early, is frequently repeated and quickly becomes stercoraceous, and when the belly is uniformly and only moderately distended, and the excretion of urine is small, the obstruction is known to be seated in the small intestine, and the higher up the strangulation the more marked are these distinguishing features. When, on the other hand, the abdomen is greatly distended and the vomiting is less urgent and a longer interval elapses before it becomes stercoraceous, it indicates that the obstruction is in the large intestine. The hemorrhages constitute one of the most constant symptoms; they are absent in only 20 per cent. of acute cases; they vary in amount according to the site and extent of the invagination. As soon as the process becomes subacute, the hemorrhages may cease or temporarily disappear. On the other hand, large, gangrenous, putrid pieces of intestine may be passed per rectum. Lobstein mentions a peasant woman of about thirty who was suddenly seized with an attack of intussusception of the bowel, and was apparently in a moribund condition when she had a copious stool, in which she evacuated three feet of bowel with the mesentery attached. The woman recovered, but died five months later from a second attack of intussusception with ileum rupturing and peritonitis ensuing.

All of the above remarks have been relative to acute intussusception; but we have a form under the name of chronic intussusception which includes those cases of intussusception having a duration of one or more months. Their extreme importance is shown in the words of Dr. Treves, that no form of intestinal obstruction offers so many difficulties in the way of its recognition, and no form has been the subject of more error in diagnosis. This form appears most frequently in adult males. Its course is most irregular. The onset is sudden in only about one-third of the cases—a point, when present, of much value in the diagnosis of this from other forms of chronic obstruction. Pain, seldom severe, may be entirely absent for long intervals, these becoming shorter as the disease advances. Vomiting is marked in only about half the cases; it is feculent in only about 7 per cent. The action of the bowels varies greatly. As a rule they are irregular, more often with a tendency to diarrhea than toward constipation. In about 50 per cent. a bloody discharge from the anus may be expected. Distention of the abdomen is slight and may be absent save during attacks of temporary obstruction. A tumor is to be felt in about half the cases. The general condition is one of wasting and anemia, the patient not infrequently dying of marasmus.

None of the symptoms described above, however is pathognomonic, and only by careful consideration of the separate data can a mistake in diagnosis be avoided.

Now, having made our diagnosis by a careful study of the foregoing symptoms, the only thing in my mind to do, and to be done *at once* (anyhow within the first forty-eight hours of the trouble) is surgical interference. I say surgical interference because the great majority of cases come to that; and I deem it dangerous to waste time with other methods. The sooner the abdomen is invaded and the mechanical derangement relieved by mechanical means, the better for the patient. The old-time method of giving opium and belladonna and raising the pelvis and lower limbs of the child, and passing into the bowels the nozzle of a Lund's inflator, or a full-sized catheter well smeared with vaseline, attached by tubing to a bellows, and by this method filling the child full of wind, has long since been deemed too dangerous and abandoned. It is also risky to indulge very much in the clyster; on account of the weakened con-

dition of the walls of the bowels and the danger of perforation. It is impossible to give medicine by the mouth, on account of the incessant vomiting which is nearly always present. Hence there are only two things to be done—one, to place on the abdomen hot fomentations and await nature's good will and pleasure; or place the patient under anesthesia and enter the belly wall, relieving all abnormal conditions found therein.

I desire to describe a typical case which came under my care recently: Mrs. E. brought her three-year-old daughter to my office suffering intense pain at times in her abdomen and with incessant vomiting and great tenesmus. It was easy for me to make the diagnosis of intussusception. I sent her to the hospital, informing her of the gravity of the case, and prepared to operate. In about thirty-six hours from the commencement of the attack we had completed our operation. Before entering the abdomen, however, we could feel an elongated tumor along the course of the descending colon. We found with very little difficulty the intussusception, which consisted of about five inches of the descending colon swallowed up within itself. After breaking up with the fingers some slight adhesions, and with gentle traction, the gut was disengaged and the strangulation was relieved. Within the next six hours the bowels moved copiously *three times*, without any blood. There was no rise of temperature and my patient made an uneventful recovery. I will also state here that in all laparotomies in children, it is well to administer an anesthetic when the first dressing is made. There is nearly always fright, and the little patient will cry and strain, and you will likely have the stitches giving way and an abdominal rupture. I had one case like this, which made me very cautious with my first laparotomy dressings.

Fortunate indeed are we to find these typical cases. More often we grope around in the dark until the true light is seen only through an exploratory operation. But let me reiterate what has been said—in all cases of intussusception, I believe it far safer to operate than trust to any other method or methods of treatment. First be sure that you have intussusception, then operate, and nine chances out of ten you will be doing the right thing for your patient and yourself.

Chemistry of Nephritis.—The chemistry of the blood in nephritis has been studied exhaustively by F. Ereen (*Zeitsch. f. klin. Med.*, Vol. 57, Nos. 1 and 2) with the following results: In parenchymatous nephritis, the proportion of albumin to globulin in the blood is altered in that the latter is in excess. In the interstitial form the proportion is about normal. Other changes in the parenchymatous form are a decrease of lecithin and lime in the serum. There are other minor differences, but to determine whether these are constant or accidental will necessitate a larger number of analyses.

A CASE OF RETAINED INTUBATION TUBE TREATED BY GRADUAL DILATATION.[1]

BY FIELDING LEWIS TAYLOR, M.A., M.D.,
OF NEW YORK.

A. K., MALE, aged three years and two months, was first seen by me the latter part of November, 1903. He had then been ill with slight fever for four or five days, but had not shown any signs of croup until the evening of November 24. During the evening of November 25, Dr. J. I. Metzger saw the patient for the first time. He observed a separating necrotic membrane on the tonsils and administered antitoxin. There was at that time a moderate amount of laryngeal stridor. Marked dyspnea, however, developed rather acutely toward seven o'clock the following morning. When seen by me about eight o'clock, November 26, there was absolute cessation of breathing, and Dr. Metzger was endeavoring to perform artificial respiration. The child was unconscious, pulseless, limp and apparently moribund. Dr. Metzger stated that there had been no attempt at respiration for some minutes before my arrival.

I fortunately had a 6-7 (new scale) tube on the obturator, already threaded, which I had fixed for another and older patient. There was no time to lose, and I inserted this without difficulty. Then artificial respiration and precordial massage were resorted to with success. About forty-eight hours later this tube, being too large to be coughed out, became plugged with detached membrane. It was removed without difficulty and the next smaller size (4-5) introduced.

November 30, four days after the original intubation, this tube was removed, but reintubation was required after two hours. I now used the built-up O'Dwyer special tube 3, to change the points of pressure.

December 4, five days later, this was removed, but intubation became necessary again after eight hours, when an ordinary three-year tube was inserted.

December 12, eight days later, this tube was removed. The child recovered his voice after three days, and appeared to be progressing satisfactorily, when, December 21, nine days after the last extubation, I was urgently called by the attending physician, who said that dyspnea had been severe for several hours, and was unrelieved by ordinary measures. The family stated that there had been more or less difficulty in breathing for the previous three days, which had grown progressively worse. A three-year tube was inserted, which was removed four days later, on December 25.

January 3, nine days later, I was called to intubate and introduced tube 3. Some force was required to send it home. Just as before, for the previous three days there had been considerable dyspnea at times, particularly when the pa-

[1] Presented before the Section on Pediatrics, New York Academy of Medicine, May 11, 1905.

tient was disturbed. Nor had he been able to cough efficiently to expel accumulated mucus.

These two attacks of dyspnea, almost identical in that they began six days after extubation and grew gradually worse for three days until respiration became dangerously stridulous, led me to believe that I had a contracting cicatrix to deal with. (As the voice returned upon both occasions within a day or two and was nearly normal, it seems probable that the vocal cords were not involved.) I therefore decided to try gradual dilatation of the stricture, according to the method of Dr. John Rogers, so that after a week, tube 3 was removed and tube 5-7 (old scale) at once inserted and allowed to remain until February 17, when it was replaced by a Rogers 5-7 tube. This tube has the same maximum transverse diameter as the corresponding O'Dwyer tube, but its neck is only 3-32 of an inch narrower than the greatest breadth of its bulge.

This Rogers tube was coughed out one week later, February 24, and reinserted to be coughed out again in two days. Marked stridor followed after an hour, and reintubation was required.

Thinking that possibly this stridor was due to weakness of the abductor muscles from prolonged disuse, and hoping that sufficient dilatation had been obtained, I inserted tube 3 to allow the abductors to regain their tone. It seems that when under the same conditions, the laryngeal abductors show a greater tendency to atrophy than the adductors.

March 12, two weeks later, this little tube was removed and intubation was not required again until March 21, nine days later, when I inserted tube 4.

This first attempt to dilate the larynx gradually required sixty-eight days. I had failed the first time, but determined to begin again, and rapidly arrive at the use of larger tubes.

March 26, tube 4 was removed and a 6-7 Rogers tube inserted, to be coughed out in three days. It seemed that Rogers' thick neck tube was not as well retained as the usual one, so that I now used a 6-7 (new scale) O'Dwyer tube, which I left in place for fifty-six days, or until May 23, when I introduced tube 3 to allow the abductors to regain their tone. This tube was removed one week later, June 1, 1904, since which time the child has not experienced any trouble whatsoever. He recovered his voice at once, though for a time he was somewhat hoarse. A tube was worn, in all, 160 out of 187 days.

I think this was a case of subglottic stenosis, due to small cell infiltration and contraction of forming connective tissue, occasioned by the introduction of too large a tube, which the urgency of the case necessitated my using in the beginning.

The first reintubations after recovery from diphtheria were, I think, rendered necessary by edema of the injured mucous membrane within the cricoid, following removal of pressure. It seems reasonable, however, to suppose that the three attacks of dyspnea which occurred in each instance nine days after extubation were due to contraction of organizing exudate rather than to edema. Long continued dilatation probably caused softening and stretching of the newly forming scar tissue and absorption of a great part of the small cell infiltration.

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DERMOID CYSTS OF THE MEDIASTINUM.

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INSTRUCTOR IN MEDICINE IN THE UNIVERSITY OF MICHIGAN.

(Continued from Page 499.)

57. *Warthin.* In the Pathological Museum of the University of Michigan there is a specimen of malignant teratoma of the mediastinum, showing dermoid areas. Dr. Warthin will report this case in full.

In connection with dermoid cysts of the midiastinum the case of Atlas is of interest, though it cannot be included. Joël observed a teratoma on the pulmonary artery within the pericardium. The case of Villard, which is excluded by Pflanz and Ekehorn, is quoted for reasons which will appear later. Christian gives a case mentioned by Hare which is not included in the foregoing list. From the report given by Jones of his patient, it is not apparent that the tumor was a dermoid cyst, as Madelung implies. Fofanow's case possibly should not be given here; from the very brief account of it in the abstract, it seems, nevertheless, to belong in this series. Bird reports a dermoid cyst of the sternum in which a pedicle dipped down at the juncture of the manubrium and gladiolus sterni. The case of Roser, referred to by König, has probably been reported in another form, though careful search for it has been fruitless. Not included in previous reviews are the cases of Foà, Buyvid, König (?), Kraus (history and physical examination), Foucher, Sommer, Fofanow and Predtschenski. Although the number of cases could doubtless be enlarged, still it is believed that reference has been made to nearly all of those reported up to the present time.

Etiology.—The genesis of these growths will not be discussed at length. The subject is gone into in considerable detail by Pflanz, Ekehorn, Christian, Dangschat, and others. The most generally accepted view seems to be that which looks upon dermoids as the result of fetal inclusion. Wilms, in his comprehensive study, reaches the following conclusions: "Dermoid cysts of the head, thoracic cavity, and a part of the cysts in the retroperitoneal and retrorectal tissue arise through misplacement of fetal elements by the invagination of glandular structures, or by the closure of fetal clefts."

Dermoid cysts of the mediastinum are infrequent findings, whereas mediastinal tumors in general are not rarities. Riegel, in 1870, analyzed thirty-six cases which he had collected from the literature: of these five were dermoids. Of two hundred and eighty-eight cases of tumor of the mediastinum, given by Hare in 1889, only ten were dermoid cysts. Harris reports a series of forty-one cases of sarcoma and carcinoma of the mediastinum from St. Barthlomew's Hospital; in de la Camp's seventeen cases there is also none of dermoid. These few references suffice to indicate the infrequency with which dermoid cysts are encountered within the thoracic cavity.

Sex has no apparent influence. Of the fifty-seven cases, the sex is given in forty-eight, showing an equal division, twenty-four males and a like number of females. The age at which dermoid cysts of the mediastinum first begin to produce symptoms is of no little importance in a diagnostic way. On this point, figures are furnished in forty-six cases. Arranged according to decades, we find:

Between 1 and 10 years	4 cases.
Between 11 and 20 years	5 cases.
Between 21 and 30 years	24 cases.
Between 31 and 40 years	6 cases.
Between 41 and 50 years	2 cases.
Between 51 and 60 years	3 cases.
Between 61 and 70 years	1 case.

If we again subdivide the cases falling into the second decade, we find only one between the eleventh and seventeenth years, while the four remaining cases are between the ages of eighteen and twenty. Thus, of the forty-six cases, twenty-eight, or nearly 61 per cent., came to observation between the ages of eighteen and thirty. If we should reckon from the date of onset, a number of the cases which were first observed after thirty would be seen to have shown their first symptoms before this time. The youngest patient, a suckling, is that of Medoci, while Foà's is the oldest, being sixty-one.

Morbid Anatomy.—It may be well to emphasize here what is quite evident from a cursory glance at the cases abstracted above, *i.e.*, that the term "dermoid cyst" is not used in this paper in its strict etymological sense, but is made to include, in addition to simple dermoids, those cysts which are designated epidermoid, as well as the more complex tumors which are often classed with the teratomata; in the latter the *sine qua non* is a cyst having a lining similar to epidermis. In connection with the morbid anatomy of these growths the points which we shall consider are only those which may have direct bearing on the symptomatology, diagnosis, prognosis, complications, and treatment.

Mediastinal dermoids vary considerably in size; the smallest are about as large as a walnut, while frequently they attain dimensions exceeding those of a child's head. Though the majority of them are in the anterior mediastinum, this is by no means always the case; the larger cysts, probably usually originating here, soon pass beyond, or extend the confines of, this small space. The tumors are most often found beneath the upper one-half of the sternum, extending to one side, and in some cases to both sides, of this bone, but always further to one side than to the other, *i.e.*, they are placed asymmetrically. They may be found occupying the pleural sac, between the pericardium and adjacent lung, surrounded by lung tissue, resting between the diaphragm and pleura pulmonalis, or extending through the upper thoracic aperture and producing an external tumor in the lower part of the neck.

Adhesions between the cyst and the neighboring tissues are present practically without exception. The tumors adhere to the pleura most frequently, next to the pericardium, thoracic wall, great vessels, *et cetera*. The esophagus and trachea are seldom involved. The nature of the adhesions is not definitely given in many of the reports; they are not infrequently so firm, however, as to render total extirpation hazardous and, at times, impossible.

The thickness of the cyst wall is variable; in some cases it amounts to only a few millimeters, but it may be much thicker, usually as a result of old inflammation about the tumor. In the wall may be found pieces of bone and cartilage, and occasionally teeth. Bone was met with in thirteen cases (1, 3, 5, 6, 16, 22, 30, 37, 38, 42, 45, 47, 51); in four additional cases (8, 10, 17, 20) the walls were said to be calcified in places—possibly bone. In Gordon's specimen the bone was of considerable size and resembled the superior maxilla. Bits of cartilage were present with bone in eleven cases. Cartilage without bone was found five times. In eight instances teeth—one or more, up to seven—were discovered, bone and cartilage being found also in three cases and cartilage alone once.

In all carefully described specimens the inner lining of the cyst wall resembled skin. The majority presented finger-like or polypoid excrescences. On microscopical examination the correctness of the macroscopial impression is proven, since stratified pavement epithelium having a stratum corneum is found. Beneath this are usually seen hair follicles and sebaceous glands, and at times sweat glands, though always fewer in number than the sebaceous glands. In some cases—the epidermoid cysts—only stratified pavement epithelium is present, glands and hairs, either attached to the surface or free in the cyst contents, being absent. Hairs, when present, are usually more numerous on the polypoid masses.

The contents of the cyst are the result of desquamation of the epithelial cells alone—in the epidermoid cysts, in others (the larger group) there is found, in addition, the secretion of the sebaceous and sudoriferous glands and fallen hairs. Under the microscope, therefore, one may see cells resembling those of the stratum corneum of the epidermis, fat droplets, cholesterin crystals, and hairs. The latter are generally embedded in

the pultaceous contents and may be found singly or in balls or masses of different shape. There is frequently a fluid part in which there are more solid, friable, greasy masses or "coagula." In nearly a half of the cases the cyst has perforated into a bronchus, which is most common, into the lung, externally through the skin, into the pericardium (once), and into the aorta (once), allowing the contents to escape. As much as three liters may be contained in the cyst.

The tumor presents a single cavity most frequently, with a solid portion at times forming a part of it; in five cases the cyst was multilocular. The smaller cysts may be lined with cubical or ciliated epithelium. Sarcoma and carcinoma may develop in the cysts.

Symptomatology.—There is, in a great many cases, a fairly characteristic symptom-complex, as Ekehorn maintains; taken in conjunction with the results of objective examination, the symptomatology may be even more valuable.

Foucher describes a latent period during which the tumor gives no evidence of its existence. As a rule, this continues to the time of puberty, when there is a marked tendency for the first signs or symptoms, referable to a tumor of the mediastinum, to appear, owing to sudden, rapid development which the cyst seems to take on. Exceptions to this rule are seen in the cases of Sormani, von Török, Medoei, von Eiselberg (52), and Madelung (54), where the first symptoms came on in infancy or childhood. Again, there may be no signs of a growth in the mediastinum till long past the age of puberty, and, in women, even of the climateric, as is evidenced by Türk's patient. In fact, the latent stage may be the only one, and the dermoid may be an accidental finding at autopsy, the patient never having had symptoms suggesting this condition; such was the case with Sommer's patient, the symptoms finding a satisfactory explanation in the chronic pulmonary tuberculosis, from which the patient died.

In the great majority of the cases there is, however, an active stage. Its onset is by no means always characteristic; indeed, it is seldom that the condition has been correctly diagnosed early, and this is only possible under certain circumstances. Trauma, or pressure on the thorax, has been given by patients as the starting point of their symptoms occasionally. In Bergman's case the patient attributed his disease to pressure; Madelung's patient developed a pleural effusion following a blow on the chest wall, while in my own case the patient dates his trouble from trauma in the region of the heart. It is not inconceivable that a sharp blow may cause the rupture of a tense cyst. The pneumonia described by my patient was likely an effusion of the contents of the cyst into the pleura, as in Madelung's case. Generally, however, the onset cannot be ascribed to a definite cause. The earliest symptoms vary considerably, and, as stated, are usually those which may accompany many intrathoracic affections.

In thirty-three cases statements are given in regard to the onset. In nine (2, 3, 4, 24, 27, 40, 43, 49, 50) the earliest symptom was dyspnea, usually associated with pain in the chest, at times with cough or a feeling of pressure. The dyspnea is present only on exertion most commonly; it may develop acutely, and occasionally it is paroxysmal and vomiting may occur. Pleural effusion ushered in the disease five times (21, 23, 37, 38, 48), while in Godlee's patient an effusion followed shortly after the appearance of dyspnea and acute pain in the side. In another case (56) an effusion was possibly the first effect of the tumor. Pain has been the first thing noticed by the patient in four instances (13, 34, 35, 37), being referred to the shoulder twice, to the ear and side of the chest once each. In a fifth case cough has been associated with the pain (7). Three times hemoptysis (23—effusion followed, 36, 39) with cough has been the initial symptom. The patients had the symptoms of pulmonary phthisis twice (6, 16), leaving the mode of onset somewhat problematical. Asthma (5), pneumonia (17), abscess (42), and a tumor in the neck (55) have been noted. It is evident, therefore, that there is nothing typical in the mode of onset in dermoid cyst of the mediastinum.

As the disease progresses, the initial symptoms usually become aggravated and are accompanied by other manifestations of intrathoracic disease.

Dyspnea may be urgent at the onset; more commonly, as stated, it is noticed only on exertion, and in the remarkable case of Lebert this was practically the only evidence of the morbid process for more than forty years. It may be paroxysmal, associated with cough, hemotysis, cyanosis, and vomiting; or there may be periods, lasting months, during which the patient suffers from this symptom, followed by marked remissions, in which breathing is normal. In the later stages of the disease difficult breathing is more constant and severe, and it may become so extreme as to cause death.

Pain is a frequent symptom. It is usually acute, seldom dull and aching. In a certain proportion of the reported cases the pain has radiated to the shoulder (11, 12, 13, 24, 34, 35, 53, 56), to the ear (35) and back of the head (13), and down the arms. In one instance (11) paretic symptoms ensued in the affected arm. The arm may feel numb in the absence of pain (55). Often the pain is paroxysmal, and it may vary as the dyspnea does.

There is nothing typical in the cough. It may come on early and usually is not especially troublesome at first. Like the dyspnea, it is not infrequently paroxysmal. The expectoration, however, is of very great importance in some cases and should always be carefully and thoroughly examined. The quantity of the expectorated matter varies greatly; at first it is small in amount, later becoming more copious, so that 500 c.c. in twenty-four hours may be raised. In some

instances large quantities are raised suddenly after rupture of the cyst, such as is seen at times in empyema. The odor of the sputum is often foul; this may appear first after a hemorrhage. The sputum may have its origin from two sources, viz., the bronchial mucous membrane and the cyst. That arising from the former may lead to the suspicion of bronchiectasis, but differs in no way from the sputum which may be obtained from any case of mediastinal tumor; after there has been rupture of the cyst into a bronchus or an open lung cavity, the material which is expectorated becomes of great moment, and microscopical examination may now establish the diagnosis. The finding of epithelial cells resembling those of the horny layer of the skin, fat droplets and cholesterin crystals is highly suggestive of dermoid cyst, while the presence of hairs in the sputum is pathognomonic of this condition. Unfortunately the latter are not expectorated in all cases in which the cyst has perforated into the air passages, even when they are contained in the contents of the tumor. In at least twenty cases there has been a communication between the cyst and the bronchi; in ten instances (2, 6, 9, 13, 24, 27, 38, 45, 46, 56) hairs were expectorated in the sputum. This furnished the means of arriving at the correct diagnosis in seven cases (9, 24, 27, 38, 45, 46, 56). In Cloëtta's patient the attending physician looked upon the hairs as a deception. It is quite possible that in those cases where hairs have been lacking in the sputum, though present in the tumor cavity, their absence may be explained by the fact that they are frequently rolled up into ball-like masses too large to pass through the opening; Ekehorn's case (38), in which "concrements" made up largely of hair, were expectorated, would seem to bear directly on this possibility.

Not infrequently hemoptysis has been noted; it is more often a later occurrence, and may be so severe as to lead to exitus (7, 29, 36, 45, 51). In some cases, on the other hand, there has been a slow but somewhat constant bleeding, so that the sputum is bloody.

In the later stages the patients may have fever, usually remittent, and edema of the ankles with or without ascites; or a terminal infection may cause death.

The course of the disease is variable and has been divided by Dangschat into three main groups. Most frequently there is an insidious onset with gradual, constant increase in the intensity of the symptoms. Less often the onset is similar, followed later by sudden development of severe and often fatal symptoms; or the symptoms may come on suddenly and with great severity in the beginning, the further course of the disease being irregular, periods of remission alternating with exacerbations.

The condition lasts, as a rule, one or more years. Estimating the duration as accurately as possible from the histories, the following data are obtained:

Duration.	Number of Cases.
44 years	1 (4)
24 years	1 (27)
13 years	1 (24)
10+ years	1 (55)
10 years	2 (7, 54)
9 years	2 (53, 56)
6 years	1 (45)
5 years	3 (11, 36, 37)
4 years	3 (21, 31, 34)
3½ years	1 (32)
3 years	3 (16, 42, 43)
2 years	2 (13, 49)
1½ years	1 (1)
1 year	4 (38, 39, 50, 51)
11 months	1 (41)
9 months	1 (3)
2 to 3 months	1 (12)

The disease is, therefore, essentially chronic in its course. In Mandlebaum's case (41) the patient died of toxemia following pneumonia, which came on after operation. Virchow's patient (2-3 months) had malignant disease; in the somewhat similar case of Kraus and Jores (32) the history and duration suggest the possibility that the sarcomatous tissue found at autopsy developed late. Besides the cases tabulated above, the disease is reported to have lasted several years in three instances (22, 35, 40). A history of chronic pulmonary tuberculosis is given twice (6, 44).

Physical Signs.—The patient is usually well nourished and shows no signs of cachexia. The pupils are equal, the radial pulses alike and synchronous. There is an absence of edema of the arms and the superficial veins are not distended. The larynx is negative.

Inspection.—In a few cases a tumor, which may extend below the clavicles, has appeared in the neck (1, 11, 13, 35, 53, 55); fluctuation has been present, and at times a pulsation, never described as expansile. The tumor may be bilateral. More often there has been observed a fulness or bulging of one side of the chest, usually anteriorly. Such a condition has been found thirteen times (3, 21, 24, 32, 34, 41, 42, 43, 48, 49, 50, 51, 56). This is situated generally between the second and sixth ribs in front and may involve the sternum. The bulging may be found low down posteriorly, as in von Török's patient. The important thing in connection with the fulness or bulging, as shown by others, is its chronicity, its persistence for months or years. It remains, at times, after recovery from effusion into the pleural cavity. Inspection may also reveal diminished or absent expansion over the prominence.

Palpation.—The alteration in the expansion is confirmed by palpation. In addition, there has been a decrease or entire absence of tactile fremitus over the prominent or dull areas in the few instances (12, 32, 34, 37, 48, 49, 56) where it has been noted.

Percussion.—This shows an abnormal area of dulness on the thorax, corresponding to the ful-

ness or prominence, where such exists. Most commonly the dulness is absolute, due to the proximity of the tumor to the chest wall, with the consequent crowding out of the lung tissue. In nearly one-fourth of the cases, and the proportion is much greater if we reckon only those in which results of physical examination are given, the area of dulness suggests encapsulated pleuritic exudate, especially when the other signs obtained on palpation and auscultation are taken into account. The figures illustrate this point. The dulness begins high up in front, extending downward to the lower lung border. The upper border of the dull region, beginning above and in front, inclines outward, downward and backward, a fact alluded to by Dangschat, so that we obtain an area not unlike the usual one in pleurisy with effusion, except that it is reversed and has not a Damoiseau's curve. In one case (56) there was relative dulness over this region. Again a small area of dulness may be found anteriorly, or there may be a dull region in front separated from a similar one behind by resonance (49). In one instance (45) the dull area decreased in size after coughing, which led to the expectoration of a large amount of sputum. A point worthy of consideration is the fact that Traube's space may remain clear. In the case of a left-sided area of dulness, this speaks for an extrapleural cause.

Auscultation.—Over the dull area absence of all breath sounds is the rule. Where relative dulness exists, there may be weakened vesicular or bronchial breathing, the latter being the result of compression generally. Râles, moist and dry, are commonly found and are not necessarily confined to one side. In my case they were fairly well limited to a portion of the left upper lobe; since there was definite evidence of a communication between the cyst and the bronchial tree, the inference was natural that the râles might be attributable either to bronchitis resulting from irritation by the contents of the cyst or to the latter alone or to both. One should expect to find the ausculted spoken voice diminished and the whispered voice absent over the affected region of the chest. The possibility of obtaining signs of open cavity, due to emptying of a perforated cyst, should be kept in mind.

Roentgen-ray examination.—On examination with the fluroscope a diffuse shadow is cast by the tumor (56). Radiographs taken in one of Madelung's cases and in Türk's patient brought out nothing in addition to the findings obtained by the ordinary methods. In tumors containing bone and teeth it may be possible to demonstrate such structures in a good negative. The positive identification of teeth would lead one a long way toward the diagnosis; the finding of bone, while less typical, perhaps, would nevertheless be of no little diagnostic value.

Heart.—The apex may be dislocated as the result of pressure, and, in the case of a tumor occupying chiefly the left side, it has been found in the right nipple line. In the case of Cordes signs of pericardial effusion were due to the communication existing between the cyst and the pericardium. A systolic murmur may be present at the base, and one should look for accentuation of the second pulmonic sound.

The liver may be pushed downward when the tumor is on the right side, so that its lower edge may be felt one to three finger-breadths below the costal margin.

Complications and Intercurrent Infections.—Pneumonia, either croupous or lobular, has occurred eight times. It was met with early in the patients of Gordon and Marchand, and in Foà's case was the cause of death. Perforation of the cyst has already been referred to. Pulmonary tuberculosis was present in six instances. Malignant disease has developed in five cases, sarcoma being found in all, carcinoma with sarcoma in two (Virchow, Warthin).

Prognosis.—Without operation the outlook is extremely grave. The patients do not live more than a few years at the most after the condition is recognized, and, unfortunately, die frequently before the diagnosis has been made. With operative treatment the mortality has been reduced from 100 per cent. to about 30 per cent.

Diagnosis.—When expectoration of hairs occurs, the diagnosis offers no difficulties. Without this symptom, a positive diagnosis can still be made. The sputum may be characteristic, as shown above. More promising and more likely to yield valuable results is exploratory puncture. This has been carried out in a few instances. It is made into the dull area, a long needle of wide lumen being essential; a trocar, attached to a proper aspirating apparatus, would seem to be even better suited to the purpose. Repeated exploration may be necessary before puncturing the cyst or obtaining the contents. The brilliant results attained by this procedure are illustrated by the cases of Kückman and Türk. Where a fluctuating tumor exists, aneurism having been excluded, here, too, exploratory puncture is preferable, because safer. The radiograph may be of very great service. The entire picture of the disease must, of course, be taken into account. Of scientific interest, but possessing little real value from a diagnostic or therapeutic standpoint, would be the examination of the cyst contents obtained by aspiration for the "Cetylalkohol" of Sotnitschewsky and von Zeyneck, the "Acetonkörper" of Linser.

Malignant tumor of the mediastinum may offer considerable difficulty in differentiation. Dermoid cyst of the mediastinum usually appears under thirty years, malignant disease after this age. The duration of the latter is two to eleven months, usually six months, according to Feldman and others. Cachexia is rare with dermoid cyst. Pressure signs, such as edema, cyanosis, distention of superficial veins, inequality of the pupils, and laryngeal changes, which are so common in sarcoma and carcinoma, are not found in connection with mediastinal dermoid. That the signs

enumerated may occur with dermoid cyst is shown by the patients of Virchow, Pinders, Kraus and Jores, and Fofanow (?), but their significance is lost when we realize that sarcomatous or carcinomatous changes or both had occurred in each of these cases. The finding of secondary growths is, of course, of importance.

Aneurism usually occurs later in life than dermoid cyst. Etiological factors are of value. There is an absence of expansile pulsation. Pressure signs are wanting. The presence of a diastolic shock with accentuated second sound over an abnormal area of dulness makes the probability of aneurism strong, as Osler remarks. In Büchner's case aneurism could not be excluded.

Hydatid disease, especially when situated in the pleura, may parallel the symptoms and physical signs of certain cases of dermoid of the mediastinum very closely. If the sputum is negative, aspiration is the only certain way of arriving at a diagnosis, as the fluid in each disease is characteristic. More rarely hydatid cyst is found in the mediastinum; the resemblance to dermoid cyst may be considerable, as in Rose's patient.

The differential diagnosis between abscess of the mediastinum and dermoid cyst is seldom difficult. As Wilson pointed out, one of the most important distinguishing features may be the febrile reaction of the former. Some of the commoner etiological factors in abscess have also been present in mediastinal dermoid. The duration in abscess is generally shorter. Exploratory puncture is again the surest procedure. Where abscess and dermoid cyst coexist, as in von Török's case, operation alone may reveal the latter.

Other benign tumors, such as lipomata and fibromata, may best be differentiated from dermoid cyst by X-ray examination, exploratory puncture and sputum examination, together with the points to be obtained from the history.

In cases where pulmonary tuberculosis is found with a small dermoid cyst, the presence of the latter may never be suspected. Hemothorax should be easily differentiated, as a rule. Pulsating gangrene of the lung, a case of which has recently been reported by Steven, should cause no difficulty.

Encapsulated pleurisy with effusion, for which dermoid cyst has frequently been mistaken, can be excluded in many instances only by examination of the aspirated fluid. The same holds good in the case of empyema.

In a radiograph, lung calculi might suggest the possibility of bone, leading to a suspicion of dermoid. The occurrence of cough, dyspnea and hemoptysis, as in Stern's cases, may make the condition still more misleading. However, characteristic pulmonary calculi have not been found in connection with dermoid cysts, and there is the absence of suggestive findings on objective examination; no circumscribed mass is found, as a rule, in the Roentgen ray examination. The latter point would also help to exclude the rare condition described by Förster, Luschka, Pollack and others, in which bone is found in the lung; the shape of the bone, if large enough to be seen in a radiograph, with the negative history and physical signs, would rule out dermoid.

"Flimmercysten," resulting from the original communication between the esophagus and trachea, are rare findings at autopsy (Westenryk) and need not be considered here.

Treatment.—The only hope of recovery lies in operative treatment. In twenty of the cases given above (11, 13, 18, 24, 29, 31, 34, 35, 39, 40, 41, 42, 43, 48, 49, 50, 51, 53, 54, 55) operation has been performed; of these fourteen, or 70 per cent, survived the operation and were either entirely cured or making satisfactory recoveries. In view of the fact that death is practically certain to follow in a few years, at the most, after the disease has progressed sufficiently to render the diagnosis possible, the indication for operative intervention is clear.

In case there is an external tumor in the neck which communicates with, or is a part of, the cyst, operation may be safe and effective. Pöhn's case is the first of this kind operated upon; in Kückman's patient permanent cure resulted. Where the tumor is adherent to the chest wall, the danger from the operation is also small. It is in those patients where pneumothorax must be produced that the greatest difficulties may arise; these may be overcome in part, at least, by the use of the Sauerbruch cabinet or some similar device.

In most instances the treatment has consisted in evacuation and drainage of the cyst, after resection of part of one or more ribs. It has seldom been possible to make a total extirpation of the tumor, chiefly on account of the adhesions; in some cases the external skin has been sutured to that lining the cyst. A marked contraction of the cyst usually follows in the course of a few months, leaving only a small fistula.

In view of the constant and prolonged bronchitis which is present in many cases of dermoid cyst of the mediastinum, chloroform would seem to be preferable to ether, other things being equal, if resort be had to general anesthesia, as has usually been the case.

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THE DIAGNOSIS AND DIFFERENTIAL DIAGNOSIS OF INCIPIENT PULMONARY TUBERCULOSIS.[1]

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It is largely due to the perfection of our diagnostic acumen that the science of medicine occupies its present exalted position. Thousands of lives are saved to-day that would have been lost but a few years ago, because more attention is now paid to the observation of the symptoms that beset the early hours of disease. The day is past for waiting for the development of the so-called "typical pictures" before we hazard a diagnosis. Frequent operations for appendicitis have demonstrated how vague and few the symptoms may be at times, and yet how serious the pathological condition present. A physician is scarcely more justified in waiting until his patient has become greatly emaciated and has evidences of beginning softening in his lungs before diagnosing tuberculosis, than he would be in waiting until a huge tumor formed over McBurney's point, or a general peritonitis had ensued, before diagnosing appendicitis.

What then is the minimum of probability upon which a diagnosis of tuberculosis can be made? One cannot condemn too strongly the remark made not infrequently by physicians as well as laymen, that so-and-so "doesn't look as if he had tuberculosis." I doubt not that tuberculosis is frequently excluded, solely because the patient does not have the facies described by Aretæus the Cappadocian, 50 B.C.: "Voice hoarse, neck slightly bent . . . nose sharp and slender . . . cheek bones prominent and red; eyes hollow, brilliant and glittering; swollen, pale or livid in the countenance . . . the slender part of the jaws rest on the teeth as if smiling; otherwise a cadaverous aspect."

Inasmuch as the diagnosis has to be made at times from the clinical history alone, it is of the utmost importance that this history be very complete. Unless questioned with care, the patient will forget much valuable data, and events of importance will not be mentioned because deemed of no moment by the patient. For instance, it is not enough to learn that some member of the family had tuberculosis, for our patient may not have been home for years, but if we ascertain that he was with the sick one and administered to his wants, then the probability is stronger that he contracted the disease.

Your patient rarely consults you because he thinks he has tuberculosis. As a matter of fact nothing is further from his mind. He may have a cough that has persisted in spite of medication, or he may have been losing weight and ambition; possibly he seeks relief from a disordered stomach. At another time a sudden hemorrhage will be the exciting cause for medical council. Again, a pleurisy will be complained of, or he may have an ischiorectal abscess. One or more of the above symptoms should suggest the possibility of tuberculosis, especially if occurring in one who has recently made a decided change in his manner of life, as occurs when one leaves the high school or college, where much time is spent out of doors, and engages in a confining business. Such a change may be sufficient to lower his natural resistance so that an active process may light up from organisms that have been dormant for a considerable period of time.

When a cough is present it is usually more marked in the morning and at the time at least, may be accompanied by some expectoration. The coughing spells are often of such severity that a considerable degree of nausea is caused and not infrequently they are followed by vomiting. *Paroxysms of coughing that are followed by vomiting are pretty apt to be either whooping-cough or pulmonary tuberculosis.* The considerate patient will many times quiet any misgivings you may have, by telling you that it is a "stomach cough," or a "bronchial catarrh," and that the expectorated material does not come from the lungs but from the back of the nose. Likewise we are assured that, though he may have had a few "hemorrhages from the throat," he has never had any from the lungs. Often the hemorrhage

[1] Read before the Medical Section of the Hartford Medical Society, April 10, 1905.

will come on during sleep or while perfectly quiet. Some afternoon temperature, a rapid pulse and night-sweats complete the usual picture. In one extreme class of cases we have the general symptoms slight and the local signs absent or very few. I recall a young woman who complained of pain in her right shoulder. Questioning developed that she had been "running down," as she expressed it, for some time and had a slight morning cough. Chief, however, was the shoulder pain which she attributed to sweeping, as it was worse at that time. Her right apex showed signs of involvement and her sputum contained tubercle bacilli.

The second rare type is to have the local signs marked and the constitutional symptoms few. This class is most common in big, strong men who eat and sleep well and have no symptoms aside from an occasional hemorrhage. The common type has both local signs and general symptoms. The earliest signs commonly met with are slight dulness, the absence of the normal vesicular murmur—a prolonged expiration—with or without râles.

The dulness may not be demonstrable except as the clavicles are percussed directly, and it is often not appreciated until one percusses at the end of a deep inspiration. Concerning the character of the respiratory murmur in the early stage there is not an absolute uniformity of opinion, though I believe the majority of observers consider that the harsh, wavy respirations precede the period of diminution of breath sounds. As the tactile fremitus and voice conduction are normally more marked on the right, we examine the left apex with great care if we find them equal on both sides, and when they are more marked at the left apex the presumption is stronger that the apex is involved.

The most common râle in the early stage is the crepitant, usually present at the end of a deep inspiration, though often not heard until the patient coughs; at other times a mucous click occurring at or near the end of inspiration is the first sign. Inasmuch as the most common site for the tuberculous deposit is from an inch to an inch and a half below the apex and slightly nearer the posterior than the anterior surface, we must examine the supraspinous fossæ with care, as the first signs are frequently observed there. If the hair on the chest and back is thick and long it will be necessary to shave the parts before the examination can be satisfactory. When examining a patient recumbent in bed one should always observe the signs present when lying on the right and left sides respectively, for not only will the note on percussion be found to vary with the change of position, but friction râles heard on the side nearest the bed will often disappear when that side is uppermost.

It is high up in the axilla, a part of the chest difficult of examination and often neglected, that one may detect the first abnormality. With the elbow but slightly abducted from the side this region can be satisfactorily auscultated with a Bowles' stethoscope. As an afternoon rise of temperature and a persistently rapid pulse may precede the signs in the lungs by a considerable period of time, we should be on the alert to detect them, especially in those whose family or business relation necessitate intimate relationship with the tuberculous.

The excursion of the diaphragm is diminished on the side of the lesion and may be demonstrated by Litten's sign, or by means of fluoroscope. Loomis has found the estimation of the corpulence, the thoracic perimeter, and the vital capacity to be of value in obscure cases. The corpulence is determined by dividing the weight in pounds by the height in inches, twenty-six being the normal for man and twenty-three for woman. The thoracic perimeter is the average of the inspiratory and expiratory chest measurements and should not be less than one-half the height. The vital capacity, determined by the spirometer, when normal, will be three cubic inches of air for each inch in height in the male and two cubic inches for the female. A departure from the normal in two or all of the above is quite suggestive of tuberculosis.

Differential Diagnosis.—In considering the differential diagnosis one first thinks of *malaria,* that haven where the ship of diagnostic doubt so often seeks refuge. In the first place malaria is an uncommon disease with us. I can recall only three or four cases that were admitted to the Hartford Hospital during the two years I was on the house staff. In the second place it has a definite symptomatology, can be diagnosed by finding the plasmodium in the blood, and promptly cured by quinine. Everything from flatfoot to otitis media has been called malaria, but I think that those who suffer most are the cases of incipient tuberculosis.

Nor should we overlook the fact that both diseases may be present at the same time. I should like to mention a case that came to the tuberculosis clinic the other day. The patient was fifteen years old and his mother said that several years ago he had had "typhoid malaria" and at that time had a high fever in the afternoon and a cough. I am not quite sure just what the nature of this particular disease is, but that it is a dire malady I am sure, as he has failed steadily since then, his cough has increased and at present the whole of the right lung is consolidated with beginning cavitation in the lower lobe.

Chlorosis.—Labbé[2] does not consider chlorosis as a disease *per se,* but as one manifestation of some other affection, more commonly tuberculosis, nephritis, syphilis, or some gastric disturbance. When no other cause can be determined he finds it is almost invariably the first manifestation of latent tuberculosis. Klebs, Jr., obtained a tuberculin reaction in a number of cases of chlorosis and Knopf mentions this fact as demonstrating the unreliability of tuberculin.

Haplin, on the other hand, reported a few years ago forty cases of true chlorosis occurring in tuberculous families, only two of which developed tuberculosis.

Notwithstanding the above, it is pretty generally believed the world over that chlorosis is a disease of itself, and that though at times associated with tuberculosis, even as Hodgkin's disease may be, it is nevertheless no more dependent upon the tubercle bacillus than is lymphadenoma.

In chlorosis the skin and mucous membranes are usually distinctly pale, but it should be remembered that persons may look pale with a normal condition of the blood, and may look of good color, although they are really anemic. It is for this reason that the actual estimation of the hemoglobin is of so much consequence. Many cases of tuberculosis look much more anemic than they really are. So similar is the symptomatology of these two diseases that we cannot make a positive diagnosis from that alone. If our patient has been losing weight and has a misshapen chest with poor expansion, it is very suggestive of tuberculosis. A blood examination and the prompt improvement in all symptoms following the ingestion of liberal amounts of iron, will, as a rule, stamp the case as chlorosis. When still in doubt, the tuberculin test, of which I will speak later, may be used.

Uncompensated Mitral Lesions, particularly stenosis, are sometimes mistaken for tuberculosis. The history of cough with occasional blood-streaked sputum, dyspnea on exertion, and the detection of a harsh respiratory murmur and moist râles may easily confuse one, especially as the murmur of mitral stenosis is faint or absent when compensation is broken. Yet the sharp ringing character of the first sound at the apex, the accentuation of the pulmonic second, the enlargement of the right ventricle, and the appearance of the murmur and improvement in symptoms following treatment will, as a rule, enable one to distinguish between the two.

Bronchitis.—In taking the histories of tuberculous cases one cannot be other than much impressed by the number who assert that their illness dates from a hard cold or an attack of grip. Thus, in thirty-four histories, I took at the Cedar Mountain Sanatorium, eighteen so described the onset. As bronchitis is such a common disease it behooves us to determine, if possible which cases are tuberculous and which are not. We should regard with suspicion all cases which do not recover after a few weeks, especially if there be associated with the cough, some loss of weight, sweats or other symptoms common to consumption; and in adults, a unilateral bronchitis is regularly tuberculous. Only frequent, careful examinations will enable us to appreciate the true condition. And I might say that one can no more make a thorough examination unless the body is nude from the waist up, than he can deliver a woman under a sheet. In view of the fact that a bronchitis often marks the invasion of a tuberculous process, we should never lose sight of our cases until the bronchitis has subsided.

Pleurisy.—All pleurisies, save those accompanying an acute pneumonia, are regarded by many as being tuberculous. While this is perhaps too radical a view, yet one is impressed with the frequency with which he encounters this symptom as having occurred during the early days of the disease. I can remember Dr. Delafield saying, "Whenever a patient has the ordinary symptoms of a dry pleurisy, and after ten days, with a clear tongue, a fair appetite and no great feeling of illness, there is a regular rise of temperature every afternoon, it is probable that the pleurisy marks the invasion of a miliary tuberculosis of the lungs."

At any rate, I think, we should state fairly to our patients the possibility of its being tuberculous, and see to it that their physical condition is kept as near perfection as is possible.

Recently a very simple method has been devised for ascertaining the etiology of serous effusions in the pleural cavities. Without going into the history of cytodiagnosis I will briefly state the conclusions: Effusions accompanying an acute pneumonia have a high specific gravity, a large amount of albumin and a high percentage of polynuclear leucocytes. Transudates occurring in heart and kidney disease, have a low specific gravity, a small amount of albumin and fibrin and a high precentage of lymphocytes.

Tuberculous effusions have a relatively high gravity, a large amount of albumin—boiling solid usually—considerable fibrin and a predominance of lymphocytes. As, however, the acuteness or chronicity of the inflammatory process appears to determine the predominance of the polynuclear leucocytes or the lymphocytes respectively, we may find that the polynuclears are in excess during the first few days, if the pleurisy be a very acute one.

Opportunity was afforded me to verify the above while resident house physician at the Hartford Hospital. In all, sixteen examinations were made, and of that number six were transudates occurring as the result of cardionephritic disease, and the remainder were considered tuberculous. These cases will be reported in detail later.

Acute tuberculous pneumonia, having, as it does, an onset identical with the pneumococcus pneumonia, is rarely diagnosed at first. During the early days the patient is apt to cough up considerable blood and very often, on about the third or fourth day, the sputum will become bright green in color. There is an absence of crisis, the pulse is more rapid, the sweating more marked and the emaciation more extreme than in the pneumococcus infection. If now the sputum be examined, elastic tissue and tubercle bacilli may be found. "Even then," Dr. Osler[3] says, "if you are old-fashioned enough you may say, 'Oh,

well! pneumonia sometimes does end that way.'" To add to our confusion, we will find that the acute tuberculous pneumonias often have a high leucocyte count, one of Osler's cases having 74,000 (*op. cit.*).

Another important and valuable aid to the diagnosis of obscure cases is tuberculin, which is now quite universally used by the phthisiotherapists in this country and Europe. I have employed it in a number of cases at the Hartford Hospital and found it valuable in demonstrating the tuberculous origin of suspected cases of "idiopathic pleurisy" and "unresolving pneumonia." In no case was there any indication of the slightest harm, and in two cases a note was made a few days later that the signs in the lung showing improvement.

A letter I received recently from Dr. V. Y. Bowditch expresses so well the views of a conservative yet progressive man that I will quote part of it: "When its use diagnostically was advocated so freely I hesitated for a long time before I could overcome the repugnance, foolish, perhaps, to its use. Yielding to the opinion of men in whose judgment I felt implicit trust, I began cautiously to use it in very obscure cases, feeling that by not doing so I was holding too conservative a position, perhaps, and thereby not giving the patients the benefit of a doubt that might exist. In the last two years I have used it in a considerable number of doubtful cases at both sanatoria, and although I do not consider it to be an infallible diagnostic agent, I do think it to be of service in certain cases, and I can honestly say that I have never seen the slightest harm come of it."

Dr. E. R. Baldwin, in a letter relative to its uses, said: "In short, tuberculin is not needed in most cases for diagnosis, but when needed is of the utmost value if a positive result from a small dose it obtained," and in a former article[4] he stated that "the latent tuberculosis in a person in apparent good health, that will not react to tuberculin, should cause no anxiety."

So firmly is the belief fixed in some lay minds, that consumption can only exist when the emaciation is extreme and the cough incessant, that nothing short of a tuberculin reaction will convince these "doubting Thomases" that tuberculosis is present.

In 1898 Ambler likened the diagnostic use of tuberculin to "hunting for a gas leak with a lighted candle." He now says, "I do not hesitate to use tuberculin at present; we have learned how to make our lamp a safety lamp." Moreover Trudeau, Ambler, Bowditch and others are not only using tuberculin for diagnosis but therapeutically as well.

You have doubtless observed that thus far I have made but scant mention of sputum examination. I am firmly convinced that there is a tendency to-day for the clinician to shift the responsibility of a diagnosis from his shoulders to that of the bacteriologist and the pathologist. Moreover, I believe there are a large number of physicians who will exclude tuberculosis because of two, or possibly three, negative examinations of the sputum, even though the clinical evidence is in favor of it. In the earliest stage the formula of miliary tubercles is the predominating feature and during that period the bacilli will be absent from the sputum, or very few in number. Again, in some chronic cases, the germs may be absent for considerable periods of time. In one of Osler's series of acute pneumonia tuberculosis, the tubercle bacilli were not found until the twentieth examination, made on the thirtieth day of the disease. The search for the organisms should be made on several successive days, at frequent intervals, but a negative examination should not outweigh a positive clinical picture.

And what would happen if we made a mistake and told a patient that he probably had tuberculosis if he really did not have it? The treatment to-day for tuberculosis is unfortunately not a specific one. The best we can do is to improve the general condition in every possible way and experience has demonstrated that fresh air, rest, and good food will best accomplish this end.

Now, the patient whose disease is incorrectly diagnosed as tuberculosis, is at least tired out and run down, and I know of no better way for him to regain his health than by rest, fresh air and good food. He may be able to accomplish this at home; well and good. If you send him to a well-managed sanitarium where incipient cases of tuberculosis are treated, even better; for not only will he receive the benefits that accrue from the regular life and constant medical supervision, but he will be less liable to contract tuberculosis there than he would be on any of our business streets on a windy day, or when the ever-faithful street cleaner is scattering the dry dust to the four winds.

Laymen can build hospitals for the treatment of consumption, laymen can educate the masses by distribution of literature, and laymen can improve the sanitary conditions of our poor. But it is the general practitioner who must recognize the disease when it is just beginning. Many hopes and ambitions are blighted, and many lives sacrificed each year because the disease is masquerading under another name during those precious moments when a cure is possible. We must be continually on the *qui vive*, and strive to recognize the disease from its approaching shadow.

By familiarizing ourselves with nature's first signals of distress, we can ofttimes turn to a happy ending what would otherwise have been a sad catastrophe.

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ROD AUSCULTATION.

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The *Post-Graduate*, in its number of February, 1904, contained a report on my method of "Rod Auscultation" which now, after it has been more extensively tried, I desire to supplement with some additional data, since acquired.

As is well known, to practise the method a small rod (as is here shown) is applied firmly to

the surface of the body, vertically to the latter, and the top of the middle finger passed with moderate force over the rod while the latter is steadied with the thumb and index finger. This friction produces, in the rod, vibrations, sound waves, which, in accordance with well-known physical laws, are transmitted in every direction. Hence they pass also upon the surface of the body, and, if sufficiently strong, into the subjacent organs from which they are again transmitted in every direction. If then a stethoscope be placed near the rod we can, with the ear applied thereto, hear these sound waves, and we note a sound of a peculiarly grating character, resembling somewhat the noise produced when a finger is passed over silk or similar material. If the skin is soft and not tense, the sound waves can pass through the same for only a very short distance, and likewise they cannot go very far in the loose subcutaneous tissue. If they encounter an underlying contracted muscle, or, for instance, a rib, they will naturally be transmitted into the same, and, according to its course, continue in it, becoming audible nearly over the full extent of this muscle or of this rib, provided that both stethoscope and rod are placed over the same structure; an internal organ will, therefore, under these conditions, not be able to influence the audibility of the sound waves. But the conditions are different if a muscle or a rib does not intervene between the internal organ and the stethoscope and rod, or if either the stethoscope or the rod is applied so as to avoid a muscle or a rib. In this case then it is impossible for the sound waves to be transmitted through the latter from the rod to the stethoscope, and the examination of the internal organ is no longer disturbed thereby. We shall then, since the sound waves are transmitted in every direction in this internal organ, hear the sound produced by them as long as stethoscope and rod are over this organ, and cease to hear them when one or the other has left the organ; this for the reason that the waves being reflected at the boundary of the organ, at the serous covering, are thus prevented, or nearly so, from passing to an adjacent organ; hence, the sound that is heard becomes more dull and now resembles the noise produced by a finger passing over rubber or similar substances. (The difference in the sound is due principally to the absence of the high upper notes, which, as is well known, produce the above-mentioned grating noise and which are reflected most at the boundary of the organ.) To make still more certain it is best, every time we believe that we have found the boundary of the organ, to make a second examination by applying the stethoscope at another point, the rod, as before, being moved toward the boundary and the above described change of the sound listened for. If with both examinations the boundary is found to be at the same point, the result is bound to be correct.

The details as to the physical proof, etc., may be found in my previous articles on this subject.[1]

The density of the examined organ, the amount of air contained in the same, etc., cannot materially affect the examination, since the latter depends merely upon the transmission of the sound waves through a single organ; on the other hand, organs containing the same amount of air, and which therefore cannot be differentiated by ordinary percussion, can positively be distinguished from each other by rod examination, as explained by me in former papers.

Small organs are but little suited for rod auscultation, as transmission through the skin and the surface of the body is most likely to interfere with the examination. The heart also cannot, in most instances, be delimited with sufficient exactness by this method. This is more especially true of the right and left boundaries of the heart because transmission through the ribs too often plays a disturbing part and vitiates the findings. The upper and the lower boundaries are more readily determined.

It is much easier to examine the lungs, and I succeeded especially, as I have shown in the *Berliner Klinik*, Heft 181, in determining the position and extent of the apices with an accuracy impossible with any other method (except the Roentgen rays). I was enabled by this method to show that the statements of the textbooks on Internal Medicine with reference to the extent of the pulmonary apices are incorrect, that they are situated much more inward and do not by any means extend as far upward as has always been assumed by clinicians. I found the results of my examination to agree with the statements of the works on Anatomy and with my own investigations at autopsies.

By means of rod auscultation it is possible also to differentiate the individual lobes of the lungs provided they do not coalesce with one another.

It is equally possible to determine the boundaries of the liver readily and accurately if the abdominal muscles are not tense, and especially when that organ is somewhat hard—hard and

1 Zur Grössenbestimmung innerer Organe. Deutsch. med. Wochenschrift, No. 46, 1901; Weitere Mittheilungen über die Grössenbestimmung innerer Organe durch die Stäbchenauskultation. *Ibid.*, No. 20, 1902. Berliner Klinik, No. 181.

firm organs being better conductors than flaccid and soft ones.

The method is of special value in cases where the diagnosis is somewhat in doubt and where it becomes a matter of importance to clear this up, as, for instance, whether an abdominal tumor that has been definitely made out has its origin in the liver or is merely situated in its vicinity—a point that cannot always be determned by palpation and percussion. The change of the friction sound in this case is bound to occur very distinctly between liver and tumor if the tumor does not coalesce with the liver; the change will not take place if it does so coalesce, the sound waves in the latter instance encountering no obstacle from which they are reflected.

If the above described physical principles of rod auscultation are always borne in mind, if the above-named causes of error are taken into consideraton, and if, on the other hand, no more is expected of this method than it is able to accomplish, then, I am certain, it will be welcomed as a further and important complement to our present methods of examination.

MEDICAL PROGRESS.

SURGERY.

Laparotomy in Peritoneal Tuberculosis.—That laparotomy often cures tuberculosis of the peritoneum is undoubted, but the experience of D. GOESCHEL (*Deutsch. Arch. f. klin. Med.*, Vol. 84, Nos. 1 to 4) is not as favorable as that of most other authors, for in a series of 19 cases, only 16 per cent. were perfectly cured after three years. Not all cases are suitable for operation or require it. Thus, in children, as high as 33 per cent. recover spontaneously. The best results are always seen in the exudative type, while the adhesive type and the form running with tumor-formation are benefited only slightly. Where suppuration and ulceration accompany the disease, a laparotomy will often do more harm than good. The same applies to cases where other foci are already present in the body. Tuberculosis of the intestinal mucous membrane is a particularly severe complication. In very early cases, which run an acute course with rapidly increasing ascites, the sooner the operation is performed, the better. Simple puncture is rarely sufficient, since the fluid will rapidly reaccumulate. The author never employed iodoform and never resected tuberculous structures, except occasionally the appendix. The wound was generally closed entirely, except where pus was found, when a small strip of gauze was regularly introduced into the lower angle. During the after-treatment, the patients were kept in the open air if the weather permitted.

Report of Operations Performed at the Public Clinic for Students at the German Hospital During the Session of 1904 and 1905.— J. B. DEAVER (*N. Y. Med. Jour. and Phila. Med. Jour.*, July, 1905) reports the series of operations performed at the clinic for students at the German Hospital during the session 1904-1905; 23 clinics were given, during which 182 operations were performed with a mortality of five deaths. The deaths were from acute appendicitis, 1; cholelithiasis, 1; biliary cirrhosis, 1; strangulated inguinal hernia, 1; removal of prostate, 1. The author lays great stress upon the proper teaching of pathological anatomy at the operating table, so far as is possible, rather than at the post-mortem table.

Popliteal Aneurism, its Surgical Treatment.—H. M. TAYLOR (*N. Y. Med. Jour. and Phila. Med. Jour.*, July, 1905), in a consideration on this subject emphasizes two points which he considers very weighty. They are: (*a*) In traumatic and in sacculated aneurisms we can and should preserve the lumen of the parent artery. (*b*) In fusiform aneurisms we should arrest the circulation through the sac, and obliterate its cavity without disturbing the outside adhesion of the sac. In both innovations we lessen the danger of calling upon the collateral circulation too suddenly. In the treatment of sacculated aneurism the statistics of Dr. Ramshoff show the advantages of the revived Antyllus operation. They are mortality-proximal ligation 18 per cent., extirpation 11 per cent.; gangrene-proximal ligation 8 per cent., extirpation 3 per cent.

Fractures and Dislocations of the Ulna.—J. SHERMAN WIGHT (*Am. Med.*, July 8 and 15, 1905) treats this subject in a systematic manner. There are (1) fracture of the styloid process; (2) fracture of the shaft of the ulna; (3) fracture of the olecranon; (4) fracture of the coronoid process. The dynamic relations are fully treated and the mechanism of the injuries explained in detail. The results are explained in the clinical reports illustrating the different fractures. Thus the author gives a basis from which to determine the nature of an old fracture to the ulna. The patient suffers pain in the joint; this is sometimes severe. The power of flexion is generally lost, although in some instances there is good command over the motions of the forearm, mostly for the reason that some of the fibers of the tendon of the triceps remain attached to the upper end of the lower fragment. The patient has a sense of insecurity in his injured limb, which may be best explained by saying that the coordinate action of the elbow-joint has been impaired or lost. This impairment is different in different persons. It would appear as if the coordinate circle of the joint function had been more or less broken into; this circle is made up of bone, nerve and muscle. Therefore there should be no difficulty in understanding the disability which follows the break in the correlated bone. It would seem to be nearly impossible for the ulna to be dislocated by the application of violence to its lower end, unless we take into account those cases in which there has been a fracture of the external condyle; in such a case the ulna is dislocated backward, and is accompanied by the head of the radius and the broken off external condyle.

Antitetanic Serum in Gunshot Wounds.—The results obtained in the treatment of gunshot wounds by the prophylactic use of antitetanic serum combined with early surgical measures is recorded by H. J. SCHERCK (*St. Louis Med. Review*, July 29, 1905). The cases occurred as a result of the Fourth-of-July celebration in St. Louis, Mo. Seventy-eight cases in all were treated, and none developed tetanus. The method of treatment was as follows: The wound was freely incised, all foreign particles thoroughly removed, and the wound cauterized with 25 per cent. carbolic acid and loosely packed with gauze saturated in a 5 per cent. solution of carbolic acid. An immunizing dose (10 c.c.) of antitetanic serum was then injected into the cellular tissues of the abdominal wall. The cases were then carefully watched until all danger of tetanus had passed.

Gall-Stones in the Common Duct.—W. D. HAGGARD (*Journal A. M. A.*, August 12, 1905) holds that

there should be a more general early recognition of gall-stone disease before complications and common-duct obstruction occur. In the invasion of the common duct by stone two dangers are to be considered—obstruction to the flow of bile and infection. Unless the stone is tightly impacted there is still likely to be some flow, and this tends to wash away the infection. Even an impacted stone may be irregular in shape and allow some flow around it, or a round stone completely plugging the lumen may be floated back temporarily in a distended duct, thus causing the intermittent ball-valve obstruction of Fenger. During an intermission or if no infection or jaundice is present, the mortality of operation with a competent surgeon is slight, but unfortunately, as Mayo observes, "the majority of common-duct patients have either never had an intermission or have passed beyond it, and operation is no longer an election as to time, but a necessity, and, no matter how desperate, must be undertaken to save life." The complications of stone in the common duct, such as suppurative cholangitis, liver abscess, pancreas infection, cancer from prolonged irritation, etc., are noted by Haggard. The typical symptoms are very characteristic; they are, in the order of their incidence, pain, chill, temperature, sweating, hypersensitiveness and jaundice. The pain may be dull and constant, but is usually paroxysmal and cramplike. The chill, fever and sweating have a resemblance to malaria and, if jaundice be absent, may cause error in diagnosis. The gall-bladder is rarely dilated, having usually been thickened by previous infection. This is a valuable sign in discriminating the condition from about the only other one with which it is liable to be confused—obstruction of the common duct with jaundice from other causes, principally cancer at the head of the pancreas. With distention of the gall-bladder, a deep persistent jaundice generally indicates quite certainly a non-calculous origin. Jaundice itself is not an infallible sign, and should not be confidently looked for in the majority of gall-stone cases. The diagnosis can and should be made in most instances before the complications that cause jaundice occur. Obstruction being a mechanical condition, it requires mechanical treatment—operative removal. The statistics of surgery are increasingly favorable with prompt diagnosis and resort to operation. Surgery gives opportunity for the relief of the other element of danger—infection—by drainage, and drainage, Haggard says, is the secret of success in the treatment of inflammations of the gall tracts.

Gastro-enterostomy.—The various operations for securing gastric drainage as a correct treatment for certain morbid conditions of the stomach are discussed by W. H. WATHEN (*The Journal A. M. A.*, June 17), and he gives not only his own views and his own special technic of posterior gastro-enterostomy, but also the opinions, obtained through correspondence, of prominent surgeons, including Mayo Robson, Moynihan, Czerny, von Mikulicz, Kocher, Murphy, Mayo, Ochsner, Park and Deaver. His conclusions from a consideration of all the facts are, in substance, as follows: (1) Some cases of acute and subacute gastric and duodenal ulcer, and many cases of chronic and duodenal ulcer, should be treated by efficient stomach drainage into the duodenum or jejunum. (2) Pyloric divulsion and pyloroplasty for this purpose have failed and are now obsolete. (3) Gastroduodenostomy as modified by Kocher and Finney, may do in many cases, but it should be limited to such as can not be operated on by a posterior retrocolic gastro-enterostomy with the anastomosis near the duodeno-jejunal flexure. (4) Anterior anticolic gastro-enterostomy should not be the operation of election, but only of expediency and necessity, to give temporary relief, or to meet abnormal conditions contraindicating the posterior attachment. (5) The ideal operation of election is the posterior retrocolic attachment near the beginning of the jejunum, and at the bottom of the stomach in the pyloric end, thus eliminating the loop. (6) This affords the best drainage, prevents vicious circle and regurgitant vomiting, leaves stomach and intestine in nearly normal relation, and gives better immediate and ultimate results. (7) The intestinal incision should be longitudinal and not less than two inches long, and the stomach incision of corresponding length, preferably in the oblique direction. An elliptical strip of mucosa should be excised from both incisions. (8) The anastomosis is best made by continuous suture Pagenstecher or silk), using a full curved round-pointed needle. It should be applied in double layers, the inner to include all the visceral layers and unite the cut edges of the opening; the outer, one-fifth inch away, to include the serous and subserous layers. (9) Entero-enterostomy, or closure or resection of the proximal jejunum or pylorus, is needless. It causes traumatism and leaves a deformity that may cause immediate or subsequent bad results.

Etiology of Appendicitis.—After considering the various theories advanced by well-known authorities, SHURLY (*Buffalo Med. Jour.*, July, 1905) considers that the consensus of opinion seems to be that the important cause is the accession and activity of various bacteria, and specifically the colon bacillus through abrasion of the lining membrane; but to assign to these bacteria any more than a secondary or exciting rôle in the causation of the disease would seem irrational, when we consider the wide distribution of the colon bacilli throughout the intestinal tract. The formerly supposed causation of appendicitis by foreign bodies, concretions, etc., is disposed of by the many appendices which harbor such things without being diseased. The same may be said of anatomical variations. The author advances the theory, that if through mechanical action, or otherwise, an abrasion or atrium is formed by which these micro-organisms, especially the colon bacillus, secure an entrance into the connective tissue and lymph vessels, and thereby set up infection, and that probably concretions are the principal agents in producing such abrasions by mechanical action.

A Case of Congenital Urethral Stricture Associated with Hematuria and Symptoms Suggesting Renal Disease.—J. W. CHURCHMAN (*Johns Hopkins Hosp. Bull.*, July, 1905), after reporting in detail a case of congenital urethral stricture, summarizes the interesting features presented as follows: (1) This patient presented a urethral stricture in which a positive diagnosis of its congenital nature could be made. Such a diagnosis was warranted by: (*a*) The history, from which all record of urethral traumatism or of venereal infection was absent; (*b*) the association of an obvious congenital stricture at the meatus; (*c*) the complete cure of the clinical manifestations by proper treatment of the stricture; (*d*) the presence of clear urine and the absence of symptoms after the actual stricture had been dilated. (2) The second point of interest was offered by the clinical symptoms presented. These were nausea and vomiting, hematuria and pain over the left ureter. They suggested renal or urethral disease, and obscured the diagnosis which really only cleared up by the therapeutic test. (3) In the third place, this case suggests that another item must be added to our already long list of causes for hematuria, and that congenital stricture may be associated with

blood in the urine, the source of which may probably be an hypertrophied veru montanum.

Knee Injuries and How to Manage Them.—DE FOREST WILLARD (*Am. Med.*, June 17, 1905) says sprains of the knee are often followed by long continued results from the fact that ligamentous, tendinous or fascial structures are torn. Permanent disability and weakness are common. An early diagnosis of the existence of such tear, or of fracture, or of dislocation of cartilages or of loose bodies, is essential. The Roentgen ray may assist. Rest, complete or partial, is the initial element of treatment. Heat and cold are the most powerful abortives of synovial inflammation. Partial fixation by adhesive plaster strapping, or fixation by plaster-of-Paris or other solid splint, with the use of crutches, is helpful. The limitation of the period of rest is, however, most important. As soon as the inflammatory signs have subsided, massage and voluntary movements are important lest chronic tenderness of the joint be induced. Serous effusion is to be removed by compression, tapping or incision. Blood clots should be removed. Displaced semilunar cartilages should be replaced by manipulating and recurrence avoided by an apparatus limiting motion. Upon recurrence of the injury, the cartilage should be stitched in place or removed. Loose bodies in the joint should be removed, when discovered. Sensitive or hysteric joints are induced by too long continuance of rest. These can only be cured by involuntary and voluntary movements, which should usually be preceded by anesthesia. Fibrous anchylosis can be overcome by forcible and cautious movements, with persistent massage, dry heat, manipulations, etc.

MEDICINE.

Improvement of the Sahli Test-Meal.—Several years ago, Sahli recommended a test-meal, the chief ingredient of which was a soup made of flour roasted in butter. Owing to the fact that the fat was held in fine emulsion by the flour, a good idea of the motor function of the stomach could be obtained if a butyrometric test was made of the expressed soup. Since the latter test required a special centrifuge the method has not become popular though excellent in other respects. H. SAHLI (*Münch. med Woch.*, July 11, 1905) now recommends the following modification: Instead of centrifuging, the mixture of test-meal suphuric acid and omyl alcohol is placed in the water bath for ten to fiftcen minues when all the fat will separate on the surface of the mixture as perfectly as with the centrifuge. The Sahli test-meal is also an excellent method for determining the bacterial flora of the stomach. With the Ewald or Boss test-meal a large number of bacteria are quite regularly introduced into the stomach, but the Sahli emulsion is virtually sterile when taken, since it has been boiled shortly before use.

Intestinal Stones.—An interesting case of intestinal concretion is related by R. NAUNYN (*Deutsch. Archiv f. klin. Med.*, Vol. 84, Nos. 1 to 4). The patient suffered from alternating constipation and diarrhea and the diagnosis presented many difficulties until many hard, light-colored masses were passed. A chemical examination showed that these were made almost entirely of a resinous matter. The patient's history then disclosed that he had been in the habit of taking resinous tinctures for a long period for a painful gingivitis. The resin was precipitated in contact with saliva and had then formed compact masses in the lower intestines.

Diagnosis and Treatment of Gastric Ulcer.—After a careful review of the symptoms of gastric ulcer, in which are defined the typical and a typical symptoms, C. E. NAMMACK (*N. Y. Med. Jour. and Phila. Med. Jour.*, July 15, 1905), states that before a definite diagnosis of gastric ulcer can be made, the following conditions must be excluded: hyperchlorhydria, acute catarrhal gastritis, gastralgia, cholelithiasis, cancer of the stomach, intercostal neuralgia accompanying digestive disorders, gastric crisis in locomotor ataxia and other diseases of the spinal cord, and duodenal ulcer. The points of differential diagnoses are considered. The three leading indications for treatment are to improve general nutrition, to diminish the excessive acidity of the gastric juice, and to put the ulcer at rest. The author considers that the great majority of acute cases will heal under appropriate medical treatment, while surgery promises more in the treatment of chronic cases. Besides the chronic cases surgery is always indicated in hemorhage and perforation.

The Ethics of Consultation—B. D. BOSWORTH (*Journal A. M. A.*, July 8, 1905) calls consultation the highest function in medical practice and protests against the unreasonable neglect into which it has fallen. It is a duty, he thinks, of the young practitioner to avail himself of the counsel of the more experienced men with whom he has begun to compete. He also believes in exclusiveness in consultation, no matter how far the bars may have been let down, and is thankful that there is no law to prevent the exercise of individual judgment and discretion as to whom we shall meet in consultation. It is better that the medical attendant should first propose the calling of counsel, but the choice of the patient s family should be respected. He gives the mode of proceeding in an ideal consultation, and the need of conciseness and brevity, both for the sake of the patient and his friends, is insisted on, and he makes a special point that, unless it is demanded by the family physician himself and for good and sufficient reasons, no one who has been called as a consultant is ever justified in taking charge of the case, or should ever intimate that any part of the treatment did not receive his assent. Ignorance, he thinks, is the invariable excuse for the flagrant violation of ethical principles in these matters. The members of the profession ought to give more careful study to the principles of ethics that have been promulgated by the Association.

Albuminuria in Relation to Diabetes.—There are three distinct groups of cases in which albuminuria is associated with diabetes, according to M. LANCEREAUX (*Bull. de L'Acad. de Med.*, July 31, 1905). They are as follows: (1) Albuminuria due to arteriosclerosis with secondary lesions in the heart and kidneys; (2) albuminuria of epithelial origin, due to an intercurrent disease, particularly tuberculosis; (3) albuminuria without renal manifestations, alternating with glycosuria, and, like the latter, of nervous origin. In the first class of cases are frequently seen fat diabetics who have become albuminuric at an age difficult to determine, on account of the insidious development of this condition and the carelessness of the patient in seeking medical advice. It may, however, be said that in these cases the albuminuria appears subsequently to the diabetes and at the same age, from forty-five to fifty-five years, at which it appears in arteriosclerosis. The clinical features are an abundant, pale urine of relatively low specific gravity (1.010 to 1.020), nocturnal polyuria, a moderate amount of albumin, without or with a slight edema. Death occurs from uremia rather than from glycosuria. In

the second class of cases tuberculosis is the most common cause of the albuminuria. Among other causes is suppuration of the bladder (relatively common in the diabetic women) owing to the introduction of micro-organisms from without. The third class of cases are found among private rather than hospital patients, and are discovered only by accident. In these the albuminuria and glycosuria may be considered as two syndromes of similar origin; the author characterizes this association as the "albuminurious diabetes." This association is found particularly in obese and gouty patients.

Sunshine and Shadow in Medical Endeavor. The address of J. D. Bryant (*Journal A. M. A.*, August 12, 1905), covers the subject of the recognized results of medical science in relieving human suffering as well as the numerous annoyances and drawbacks experienced by the profession in its beneficent work. He gives entertaining illustrations of some of these drawbacks, the wiles of quackery, the much misled credulity of the public, the misappreciation of the differences between thrifty commercialism and ethical proprieties, the tendency to fads in the profession itself and to the overdoing of certain methods, etc., and the risks of falling into ruts and superficial contentment. Against all these, however, he balances the great achievements of the profession, the triumphs of surgery, the great advances made in the knowledge and origin of diseases and in their treatment and the vast increase of knowledge within the last few years all tending to diminish human suffering and adding infinite possibilities of comfort and enjoyment in human existence.

Physical Signs of Air and Fluid in the Pleura. The auscultation and percussion of cases of hydropneumothorax generally enable a ready diagnosis. C. Bäumler (*Deutsch. Arch. f. klin. Med.*, Vol. 84, Nos. 1 to 4) points out that there may, however, be considerable difficulty when old adhesions of the lung or advanced changes in the lung, such as compression or cavity-formation, influence the position of air and fluid. In such cases there may be an area of exquisite tympanitic percussion within the area of flatness caused by the fluid. In some cases which came to autopsy, the author discovered a stand of compressed pulmonary tissue adherent to the chest-wall. In other instances small accumulations of air are percussed through thin layers of fluid or thickened lung-tissue or strands of fibrin have formed in the fluid. The signs often change when the patient alters his position.

Epidemic Cerebrospinal Meningitis. The diplococcus of Weichselbaum was found in all cases of epidemic cerebrospinal meningitis examined bacteriologically by H. Lenhartz (*Deutsch. Arch. f. klin. Med.*, Vol. 84, Nos. 1 to 4), but in four cases other bacteria were also present. The course extended over weeks and months, even where the disease ended fatally. The mortality was not so high as reported by other authors, since 23 out of 45 cases recovered. A pronounced difference between this form of meningitis and the form caused by the diplococcus of Fraenkel, is that the latter almost always ends fatally in a few days. Leucocytosis is a constant symptom and may reach very high degrees, particularly in the more favorable cases. The best treatment is repeated lumbar puncture; this will also prevent the subsequent development or hydrocephalus. Usually 25 to 40 c.c. of fluid are removed and the needle withdrawn as soon as the pressure sinks below 100. In one case as many as 15 punctures were made. Where lumbar puncture is not successful the ventricles may be punctured directly, though here there is always danger of setting up a hemorrhage. The most common after-effects were blindness and deafness, owing to degenerative changes in the corresponding nerves. In one case, the patient recovered from idiocy and was again able to see after the use of the seton and and inunctions with mercurial ointment.

Essential Albuminuria.—Based upon the observation of one case for 15 years, B. Neukirch (*Deutsch. Arch. f. klin. Med.*, Vol. 84, Nos. 1 to 4) comes to the conclusion that essential albuminuria is a disease *sui generis* and not related to nephritis. The albuminuria was first noticed directly after an attack of diphtheria; at times the amount rose to one to a thousand, while frequently several hours later not even a trace could be detected. Casts and other renal elements were always absent and, despite the fact that the condition persisted for many years, no hypertrophy of the heart or other visceral changes appeared. Vegetable diet and rest in bed did not make a lasting impression, but with the advent of puberty the condition disappeared spontaneously. Bland diet and high altitudes are recommended and the patients should carefully avoid exposure to cold and excesses of any kind. The prognosis is very favorable since the underlying cause is probably only a disturbance in the innervation of the kidneys.

Dr. Osler's Farewell Address.—"Unity, Peace and Concord" is the title chosen for his address by Dr. Osler (*Journal A. M. A.*, August 5, 1905). The medical profession is the only one, he says, that everywhere throughout the world has the same methods, ambitions and aims—it is the only worldwide profession In a little more than a century a united profession working in every land has done more for the race than any other body of men. Any great discovery in any part of the world is common property at once. In referring to the things needed to bring about perfect unity in the profession in this country, he laid special emphasis on the need of reciprocity in the medical practice laws in the various States and Territories, and the need for consolidation of medical schools and for the recognition of those homeopathic physicians who are ready to accept the facts of scientific medicine. Osler believes that mutual concessions only are needed, such as the abandonment of special designation, and the intelligent toleration of therapeutic vagaries that have always beset the profession, but are at worst only flies on the wheels of progress. He advocates peace, but by this he does not mean cessation of our professional conflict with ignorance, apathy and vice. This must be steadily carried on. There is, however, at times, he says, a lack of professional harmony that should exist, and this is to be lamented. He thinks that there are three chief causes of the quarrels of physicians. The first is lack of proper friendly intercourse, the second is uncharitableness, and the third is the wagging tongue of individuals, who are too often ready to make trouble between physicians. He says that a physician should never listen to a patient who tells tales derogatory of other physicians, and should not believe them, even if he thinks they may be true.

PATHOLOGY AND BACTERIOLOGY.

Transmission of Disease by Mosquitoes.—J. R. Taylor (*Jour. A. M. A.*, July 8, 1905), gives a good summary of the facts in regard to the transmission of disease by mosquitoes, so far as known. He does not consider any of the possible methods practicable for the complete extermination of malaria, but thinks that the disease can be greatly reduced in prevalence. As regards yellow fever, he believes the methods instituted by Gorgas in Cuba, if thoroughly carried out, would exterminate the disease. The same methods

will apply for the extermination, or at least the diminution, of filariasis. He believes in quarantine in all possible cases of transmission of disease by vessels, that is, a quarantine based on the natural history of the disease as we know it. The isolation of infected persons is essential. For the destruction of mosquitoes, sulphur fumigation is most effectual, but has its inconveniences. The powdered leaves of datura (jimson weed) mixed with saltpeter and burned, an ounce of the mixture to each two hundred cubic feet of space, is a cheap, safe and effective method of destroying hibernating mosquitoes. Pyrethrum and formaldehyde are said to be effective against hibernating insects, though the former only stupefies the mosquitoes, which should be swept up and burned after its use. To exterminate the stegomyia or yellow fever mosquito, all water receptacles should be treated with oil or made insect proof, and drainage and flushing of ditches, etc., should be practised. Drainage methods are even more necessary against the malarial bearing type, which breeds especially in swamps. Taylor views the general results of experiments by the New Jersey mosquito commission in regard to the merits of various larvicides, such as petroleum and the creosote preparations.

Leucocytes in Malignant Growths.—J. B. FARMER, J. E. S. MOORE and C. E. WALKER, note (*Lancet*, August 5, 1905) some observations relating to the behavior of leucocytes in very early carcinoma. Three cases were studied, and in all the phenomenon was identical, suggesting a cytologic change peculiar to the transmutation of normal cells into carcinomatous elements. It was found that there was a distinct zone of transition from the normal to the cancerous element round the periphery of the tumor. This led to the conclusion that the growth had not originated from a single cell, but was being involved by direct conversion from many functioning elements. Leucocytes which had invaded the cytoplasm of epithelial cells were obscured. In many instances the cell and its included leucocytes were both dividing mitotically. It is deduced that a mixture of the respective chromosomes occurs, a process analogous to fertilization.

An Experimental Contribution to the Treatment of Cholelithiasis.—WILLIAM BAIN reports (*Brit. Med Jour.*, August 5, 1905) a series of experiments to determine (1) the changes, if any, undergone by gallstones introduced into the normal gall-bladder, (2) the fate of such calculi when cholecystitis was artificially produced, and (3) results of medication. Sixteen dogs were used. In some of them, along with the calculi, cultures of the *Bacillus coli communis* were introduced. All of the dogs gained weight after operation except two. The experiments showed that the normal gall-bladder will dissolve moderately large calculi in about three weeks. When cholecystitis is present the stones do not disappear, though there was always a reduction in weight. Of the medicaments used, two of them, namely, a mixture of urotropin and iridin and Harrogate old sulphur water gave fairly positive results in promoting dissolution. Ichthoform calomel, cholelysin and olive oil had no appreciative effect.

Enzymes and Anti-Enzymes of Inflammatory Exudates.—The serum of an inflammatory exudate has the power of inhibiting the action of proteolytic ferments contained in the leucocytes, according to E. L. OPIE (*Jour. of Exper. Medicine*, June 10, 1905). This anti-enzymotic power is possessed by the blood-serum from which it doubtless passes into the exudate. In the later stages of inflammation there is some diminution of this anti-enzymotic power. The antibody contained in the serum is destroyed by a temperature of 75° C. The proteolytic ferments of the leucocytes act both in an acid and in an alkaline medium, but are most efficient in the latter. The anti-enzymotic action of the serum is favored by an alkaline reaction, but is completely lost in an acid medium.

The Bacteriology of Pertussis.—A study of the bacterial contents of sputum obtained from cases of pertussis at the New York Foundling Asylum was made by M. WOLLSTEIN (*Jour. of Exper. Med.*, July 15, 1905). She was able to isolate bacilli belonging to the influenza group, but differentiated from *Bacillus influenzæ* by means of agglutination reactions with the blood of patients and of immunized laboratory animals. The bacilli were found with the greatest ease early in the attack, *i.e.*, when the cough had persisted for about two weeks and the whoop was just established. They continued very numerous in the sputum throughout the paroxysmal stage. Agglutination was effected by the serum of the child in dilutions of 1:200 and occasionally in 1:500.

The Nature of Mallory's Bodies in Scarlet Fever and Measles.—A study of the protozoon-like bodies observed by Mallory in the epithelial cells and in the lymph spaces of the skin, in material from autopsies on scarlet-fever cases, was made by C. W. FIELD (*Jour. of Exper. Med.*, July 15, 1905), who paid particular attention to these bodies as obtained from blister-fluid. He believes that the bodies found in sections of skin from cases of measles and scarlet fever are part of the protoplasm of the epithelial cells which has been so changed in its chemical nature that its staining reaction differs from that of the surrounding protoplasm. The small, round extracellular bodies found in the living patients may arise from degenerating cells. In sections of control and normal skin, the nuclei of the epithelial cells were often indented by the cell protoplasm, giving them an appearance similar to those indented by Mallory's bodies. It would seem that if these bodies of Mallory's were protozoa they would have been found in the sections from both the living and the dead skin of scarlet fever and measles, as they were present in the blister-fluid. Their absence is certainly more suggestive of a degeneration than of a protozoon. This view is also borne out by the fact that they were not found immediately after death, but were present in another specimen from the same case removed twenty-four hours later. It would seem probable that the bodies found in the blister-fluid were the products of degeneration and cystolytic activity, because they were found in the antitoxin rashes as well as in the cases of scarlet fever and measles. The bodies present in blister-fluid resemble very closely these granular bodies found in blood under certain conditions, and seen in vaccine lymph and in emulsions of tissues and in exudates. The author thinks, therefore, that they are for the most part, if not wholly, products of degenerating tissue cells and of leucocytes, and within certain limits specific to scarlet fever and measles.

Some Conditions Determining Variations in the Energy of Tumor Growths.—LEO LOEB (*Am. Med.*, August 12, 1905) asserts the rate of tumor-growth is not only influenced by the species into which the tumor is transplanted, but also by variations which exist among individuals or families of the same species. Under certain conditions a state of active immunity can be experimentally produced. It can be accomplished more easily with some tumors than with others. The energy of tumor-growth can be experimentally

increased through successive transplantations up to a certain maximum. It is also possible to cause an experimental decrease in the energy of tumor-growth. These variations are caused by a direct stimulating or depressing effect upon the tumor cells. (Contact metastases may occur, and different tumors which are morphologically similar or identical behave differently in this respect. The greatest care ought to be exercised to prevent a tumor from touching the wound during extirpation. The fact that surgeons operating on tumors do not become infected agrees with the facts found in experimental tumor inoculations.) Tumor growth is primarily due to an increased energy of growth of those cells from which the tumor takes its origin; it cannot be due to a lowered resistance of the organism in which the cells carry on their apparently unlimited growth. If a tumor cannot be successfully inoculated into other animals, it is probably not due to the fact that other animals are more resistant toward the growth of inoculated tumor cells than the animal in which the tumor-growth developed originally, but to other causes still unknown.

Etiology of Croupous Pneumonia.—Formerly it was believed that the diplococcus of Fraenkel was the sole cause of true lobar pneumonia, but the importance of the diplo-bacillus of Friedländer was soon recognized. Now H. Schottmüller (*Münch. med. Woch.*, July 25, 1905) states that the *Streptococcus mucosus* is also an etiological factor, since he has it in pure culture in the lungs of five cases. The clinical symptoms were onset with chills, high fever, delirium, and stupor and albuminuria. Frequent complications were empyema and pericarditis. The defervescence was more often by lysis, and the sputum was generally very tenacious and hemorrhagic or orange-colored. The microscopical appearance of the diseased lung did not differ from that of pneumococcus pneumonia, but the exudate was marked by being very thick and tenacious. In a few cases the germ could also be cultivated from the blood during life. The percentage of positive blood-cultures obtained by the author in pneumonia in general was 23 per cent., but not all of these cases died. Conversely, the disease may be fatal, even if germs cannot be obtained from the blood during life. The importance of the *Streptococcus mucosus* as a cause of pneumonia is evident if the advances of serum therapy in pneumonia are noted.

Mixed Infection of the Blood with Proteus and Streptococcus.—Bacilli of the proteus group very often give rise to local infections in combination with other germs, particularly in endometritis, peritonitis, gangrene of the lung and in phlegmons. Such processes are generally characterized by their bad odor. General infection, on the other hand, is very rare, so that the case of G. JOCHMANN (*Zeitsch. f. klin. Med.*, Vol. 57, Nos. 1 and 2) deserves to be put on record. The patient was suffering from mastoiditis with sinus-thrombosis, but did not recover from a radical operation. The clinical symptoms did not differ from those of other cases of otogenous sepsis, and cultures made from the blood shortly before death showed very many colonies of proteus and few of streptococcus. Agglutination tests were made, and it was found that the serum of the patient reacted with proteus in a dilution of 1-640 and with typhoid bacilli in a dilution of 1-160. The serum of rabbits inoculated with the proteus obtained from the blood also agglutinated to some extent the typhoid bacillus.

The Etiology and Pathogenesis of Pernicious Anemia.—C. H. BUNTING (*Bull. Johns Hopkins Hosp.*, June, 1905), after reviewing the general etiological causes of pernicious anemia as presented by various authors, states that it does not seem necessary to assume any specific predisposition to anemia, at least not a predisposition with a pathological condition of the marrow as a basis. He considers there is a disproportion between the resisting power of the individual and the strength of the pathological agent producing the anæmic state—a disproportion shown by an inability of the bone marrow to generate a sufficient number of red-blood cells to supply the deficiency. This disproportion is especially marked in the so-called "aplastic" cases, in which after death the marrow is found to be fatty and with practically no sign of regeneration. Whether this variability in reaction depends entirely upon a variation in the intensity of the toxic agent or in part to the condition of the individual is the same problem as is presented in many diseases, as, for example, the valuable resistance offered to invasion by the tubercle bacillus, or to the toxic agents producing a nephritis or a cirrhosis of the liver. It would seem to depend more on a general lack of resistance on the part of the individual than to any special predisposition or weakness of the bone marrow. It is obvious that an anemia may be produced in several ways: First, by insufficient or defective blood formation; second, by excessive loss of red blood cells from the circulation; third, by excessive destruction of red cells; or, fourth, by a combination of the preceding factors or any two of them. The author considers that the theory of Lazarus, that the megaloblastic transformation of the marrow is due to the presence of some toxic substance, approaches most closely the true solution of the question of pathogenesis. The absorption of this toxic substance is probably of intestinal origin, which acts on the circulatory blood-producing hemolysis and through the circulation also on the marrow, resulting in a faulty hyperplasia. The author concludes by stating that a toxin is present which destroys the red cells both in the circulation and in the marrow, that it reduces the erythrogenetic groups more or less to the megaloblastic centers, diminishing greatly the regenerating power of the marrow and resulting in a discharge of megaloblastic cells in the hasty effort to supply the circulation. Thus, the regular orderly development of the groups of the marrow cells is interfered with and a short cut is taken from the megaloblast to the macrocyte, an imperfect, immature cell, as shown by its polychromatophilia and granular basophilia.

Preservation of Milk with Peroxide of Hydrogen.—Most methods of rendering milk sterile are objectionable since they either add substances injurious to health or else render the milk less digestible. An ideal disinfectant has, however, been found by E. BAUMANN (*Münch. med. Woch.*, June 6, 1905) in peroxide of hydrogen. If added in amounts of 0.35 pro mille, the milk will keep for many days and the number of germs present will actually decrease to a very low number. When pathogenic germs, such as typhoid, cholera, dysentery or tuberculosis, were added to the milk, they could not again be detected after the most searching bacteriological examination. It is always best to heat the milk up to 50° C. after the addition of the peroxide, since a certain amount of free oxygen will be formed, which is strongly bactericidal. In order to avoid any dilution of the milk it is best to use the new preparation of peroxide, perhydrol, which contains 30 per cent. The taste is in nowise altered, and numerous experiments showed that the digestibility is the same as before.

Germ of Syphilis.—Evidence is becoming more and more conclusive that the *Spirochæta pallida*, first described by Schaudinn and Hoffmann, really is the much-sought micro-organism of syphilis. Thus, C FRAENKEL (*Münch. med. Woch.*, June 13, 1905), has examined a large number of primary lesions and manifestations of the earliest stage of syphilis, and reports positive in almost every case. In lesions undoubtedly not syphilitic similar structures could never be found. Great patience and high magnifying power are necessary since the organisms are very small and not evenly distributed: thus it may happen that twenty or thirty may be seen in one field and none in a large number of fields examined later. The technic is very simple: the cover-slips are immersed for ten minutes in alcohol, dried and placed for sixteen to eighteen hours in the azur solution recommended by Giemsa. The number of convolutions shown by the spirilla vary: some possess four to six and others as many as fourteen to sixteen. The author believes that they undoubtedly stand in etiological relation to syphilis, but cannot understand why they were not discovered before.

Beginning and Growth of Intestinal Cancer.—D. MARCKWALD (*Münch med. Woch.*, May 30, 1905), has been so fortunate as to observe two cases of intestinal carcinoma in their very earliest stages. In one the growth had started in the walls of the appendix and had attained the size of a pea, while the second was somewhat smaller and had been discovered accidentally at an autopsy. It is probable that the starting point in each case was a cell, or a number of cells, situated in the submucosa and most likely of fetal origin. No signs of inflammation or of trauma could be detected, so that the cause of the sudden growth of the cells remains unexplained. Owing to increase in size of the cell-nests, the surrounding tissues will be pushed apart so that the lymph-spaces dilate and give ready access to particles of the tumor. The walls of the arteries will thicken and the endothelial cells lining the intima hypertrophy and proliferate. The stroma of the surrounding tissues does not participate in the increased growth, but remains passive. The mucous membrane covering the most prominent parts soon becomes necrotic, since the supply of blood is more or less interfered with. Metastatic growths may be found in the immediate neighborhood of the original tumor, so that if the latter has attained a large size it may be absolutely impossible to say what is primary and what secondary.

Action of the Roentgen Rays.—It is very evident from the article of O. ROSENBACH (*Münch. med. Woch.*, May 30, 1905) that many problems relating to the action of the Roentgen rays upon the animal body are still unsettled and call for extensive experimentation. What is known is that the white cells, and probably to a less extent also the red cells, accumulate in the tissues of the skin. A loss of hemoglobin and a leucopenia will thus result quite constantly, but this is due in great part to an actual destruction of both kinds of cells in the blood-stream. If the spleen of an animal, treated for a long time with the rays, be examined, it will be regularly found very rich in iron. It is not known if the blood changes actually inhibit the production of new leucocytes in the bone marrow, and if this inhibition is temporary or permanent. Clinical experience seems to incline toward the former, since most cases of leucemia rapidly became worse when the treatment was discontinued.

The Urine in Chronic Diseases and in Collapse.—In the urine of heart disease, independent of the existence of edemas, C. KLIENEBERGER (*Münch. med. Woch.*, June 20, 1905) has almost always found a slight amount of albumin, together with an often enormous number of hyaline casts. The other elements are usually not increased excessively. The hyaline cylindruria lasts a variable length of time, and the prognosis is generally worse if it accompanies edema than in the presence of edema alone. Hyaline cylindruria, persisting for days or weeks, was observed only in cases which died soon, while if the condition lasted only a few days, the symptoms were unusually severe and often amounted to a real collapse. At autopsy, the chief changes were those of a renal congestion, and a nephritis was only rarely present. Concerning most chronic diseases the following statement may be put down: Shortly before death many hyaline casts make their appearance in the sediment. The amount of albumin varies, but is usually very slight. Here, again, a nephritis is usually absent, the condition of the urine being solely due to disturbances of circulation, such as precede death. In a large number of other diseases the same condition was found, and the author believes that a thorough examination of the urine will very often aid in differential diagnosis. If a pronounced hyaline cylindruria is present the condition of the patient is serious and recovery doubtful.

Streptococci in Variola and Varicella.—Since various protozoa are being found in the different infectious diseases of hitherto unknown etiology, H. DE WAELE and E. SUGG (*Münch. med. Woch.*, June 20, 1905) again draw attention to their former researches on smallpox and the allied diseases. In the lesions of smallpox cases, as well as in the blood, they encountered quite constantly a streptococcus which morphologically does not differ from other streptococci, but which is readily agglutinated by the serum of the patient as well as by the serum of vaccinated individuals. In the vesicles of cases of chickenpox another streptococcus was seen, toward which the serum of the patient behaved specifically. On the other hand, the smallpox serum did not affect the varicella streptococcus, and vice versa. In a large number of doubtful cases the authors could settle the diagnosis by means of the agglutination test, and the subsequent history always proved them to be correct, so that the method has great practical importance. Streptococci from other sources were never agglutinated by the serum of variola or varicella cases.

Cause of Death After Burns.—If a large portion of the skin of rabbits is treated with boiling water a small percentage of animals die very soon. Since these are generally the ones that have been imperfectly narcotized the probable cause here is shock. Even if these cases be excluded the time which elapses before death sets in varies considerably. During the first twenty-four hours, H. PFEIFFER (*Virchow's Archiv*, Vol. 180, No. 3), found considerable changes in the blood, manifesting themselves in the altered shape of the red cells and the hemoglobin contents. The urine is at first hemorrhagic, and later has an acid reaction and contains albumin. The cerebral symptoms amount to a primary stage of irritation, followed by apathy and somnolency, but sometimes there is a secondary increase of reflex irritability just before death. The pathological lesions include changes in the kidneys, ecchymoses and ulcers in the intestines and stomach, and degeneration of the heart and liver. The urine possesses distinctly toxic properties toward rabbits and other animals, which increase steadily up to the fifty-sixth hour. It could furthermore be shown that this toxicity is not due to the presence of blood-

coloring matter or to the acid reaction of the urine. The poison could be detected earlier in the urine than in the serum of the animals experimented upon; it possesses both a local necrotic and a general neurotoxic action. If injected into mice a period of irritation will first be noticed, followed by paralysis and cessation of respiration. With some urines the necrotic action is more pronounced, and rarely hemorrhages into the intestines and diarrhea will follow. The toxin is easily decomposed if exposed to daylight and also passes through bacterial filters. The principles causing necrosis are destroyed by short heating, while the neurotoxic agents are frequently unaffected or rendered more potent. It is not likely that these toxins are formed at the site of injury, but the proteid molecule is probably merely altered by the heat, and from this altered molecule the toxic molecules are then formed in the body. Hemolysis and agglutination of allied blood, by means of the blood of scalded rabbits, could never be observed to any marked degree, and the death of the latter can certainly not be attributed to blood changes. The intestinal ulcers so commonly seen are not caused by a direct action of the heat, since they are also frequent, if distant parts, such as the hind legs, are scalded. They are due to the toxin, toward which the intestinal mucosa is particularly intolerant.

Granules in Lymphocytes.—According to the original classification of Ehrlich, the lymphocytes and large mononuclear cells differ from the other white cells of the blood—in that they do not possess specific granulations. More recently, however, granulations have been discovered and D. Levaditi (*Virchow's Archiv*, Vol. 180, No. 3), now concludes that their occurrence is quite frequent, though inconstant. As far as histochemical and color-reactions are concerned, they are specific, hence the name X-granulation has been proposed.

Experimental Tricuspid Insufficiency.—Since tricuspid insufficiency is only rarely found as isolated valvular lesion, the opinions concerning the changes in the heart vary considerably. Theoretically, one would expect a dilatation and hypertrophy of the right ventricle and of the right auricle, with the possibility of perfect compensation. A tricuspid insufficiency could be brought about in rabbits by destroying the valves, and E. Stadler (*Deutsch. Arch. f. klin. Med.*, Vol. 83, Nos. 1 and 2) found that the theoretical assumption was correct for the weight of the right ventricle, but more so that of the right auricle was much higher than under normal conditons. The weight of the entire heart was about normal since the left side had become atrophic. It follows that compensation was not perfect, for the left heart could not have thrown enough blood into the vessels; with lesions of a very slight degree, however, the left ventricle was nearly normal in size and the heart action probably also normal. If the greater part of the valves was destroyed, the animal died either at once or in a few hours or days; if the lesion was less severe, circulatory disturbances appeared, while with slight destruction the animal seemed perfectly well. Clinically, tricuspid insufficiency behaves like the mitral, but is more serious since there is no part of the heart which will aid in the compensation. The parenchymatous organs of the abdomen are prone to undergo serious changes, which may account for the severe cachexia.

Finer Structure of the Lymphocytes.—By means of a special method of treating blood-films, H. Schridde (*Münch. med. Woch.*, June 27, 1905), has been able to discover distinct granulations in almost all of the lymphocytes. Briefly, the film is hardened for twelve hours in a mixture of formaline and Müller's fluid, and then for twelve hours in plain Müller's fluid, and finally for thirty to sixty minutes in a 1 per cent. solution of osmic acid. A hot, 20 per cent. solution of acid-fuchsin in aniline water is employed for staining, after which the smear is differentiated in picric acid alcohol. In good specimens, all granulations except the basophile kind will appear stained, those of the lymphocytes appearing somewhat elongated, in close proximity to the nucleus and of a yellowish red hue. They are found in the normal blood as well as in leucemia and other conditions, and differ from lymphocytic granulations described by other observers.

The Toxin of Fatigue.—Further observations made by W. Weichardt (*Münch. med. Woch.*, June 27, 1905), proved that while his toxin may be obtained in large quantities from the muscle-juice of fatigued animals a simpler way would be to treat the muscle-juice of a normal animal with some reducing agent, such as sulphite of sodium. The toxin thus isolated is in every way identical with the original toxin and will be readily saturated by the antitoxin of the latter. A toxin may also be obtained with the aid of reducing agents from the albumin of placenta, brain, pollen and even eggs. The antitoxin neutralizes each one of these as readily as the muscle-toxin.

Spirochæta Pallida in Syphilis.—Reports on finding the *Spirochæta pallida* of Schaudinn in true syphilitic lesions are so numerous that even the most skeptical are beginning to believe that this organism has something to do with the development of the specific lesions. It is, however, clear from the article of B. Kiolemenoglou and F. v. Cube (*Münch. med. Woch.*, July 4, 1905), that non-specific lesions have not yet been searched sufficiently for similar organisms to enable a definite conclusion. Thus, the authors have found *Spirochæta* which could in no way be differentiated from the true *Spirochæta pallida* in the balanitic secretion of an inflamed phimosis, in simple balanitis, in the pus of a gonorrhoic, Bartholinian abscess and of scrofulodermatic abscesses, and also in broken-down carcinomata and in pointed condylomata. The *Spirochæta pallida* was never found alone, but always in company with the *Spirochæta refringens*.

Situs Transversus and Atresia of the Pylorus.—H. M. Little (*Johns Hopk. Hosp. Bull.*, July, 1905), reports a case of a newly-born child suffering with atresia of the pylorus. On account of the obstruction a gastro-enterostomy was performed on the sixth day, but the child died fourteen hours after the operation. The diagnosis of complete obstruction of the pylorus or upper portion of the duodenum was based on the following considerations: (1) The vomiting of a large amount of amniotic fluid shortly after birth; (2) recurrence of vomiting not regularly after the ingestion of small amounts of fluids, but as soon as approximately 20 to 30 c.c. has been given; (3) the presence in the stomach of entire amount of a feeding (15-20 c.c.) when the stomach was washed out two hours after its ingestion; (4) the absence of bile-staining of the vomitus or fluid obtained at lavage; (5) the presence and passing of meconium gradually showing more and more the appearance of bile; (6) the absence of any sign of digested milk in the stools as late as the seventh day; (7) the uniformly subnormal character of the temperature; (8) the persistent loss of weight; (9) the anuria; (10) the fact that the mother had hydramnios. At autopsy there was found complete transposition of the thoracic and abdominal

organs. The stomach showed that the pyloric end ended abruptly behind and to the left of the head of the pancreas.

PHYSIOLOGY.

The Specific Nature of Precipitins.—An investigation of the mooted question of the specific nature of the various precipitins was made by A. HUNTER (*Jour. of Physiol.*, July 13, 1905) with the following results: The albumin, euglobulin, and pseudoglobulin of ox-serum are each capable of leading to the formation of precipitins; and these precipitins are in a limited degree specific. They are mixtures of at least four distinct antibodies, of which albumin yields only one, while euglobin and pseudoglobulin each yield three. The production of precipitins follows a wave-like course, and is accompanied by an intermittent leucocytosis, the number of leucocytes at any moment bearing an inverse relation to the amount of precipitin.

The Action of Various Drugs on the Small Intestine.—It was possible for R. MAGNUS (*Pflüger's Archiv*, May 8, 1905) to prepare cat's small intestine in such a way as to get rid of every trace of Auerbach's plexus. Under the influence of stimulating poisons, such preparations react with a uniformly continuous contraction, while preparations containing the plexus react by means of rhythmic contractions. In small doses atropin acts upon Auerbach's plexus, stimulating the intestinal movements, while in large doses it paralyzes both nerves and muscles. Nicotine at first inhibits the intestinal movements through its action on the plexus, and later its action in this is to excite these movements. Even large doses do not cause paralysis. Combined doses of atropine and nicotine produce paralysis. Muscarin excites the centers of the plexus. Pilocarpine powerfully stimulates the movements. Physostigmin stimulates preparations that contain or do not contain the plexus. In the latter it produces rhythmical contractions.

Action of the Metallic Ferments on the Formed Elements of the Blood.—A study of the effects on the blood cells of subcutaneous injections of metallic ferments, particularly electrolytic solutions of gold, was made by A. ROBIN and M. P. EMILE-WEIL (*Bull. de l'Acad. de Med.*, July 24, 1905). In general, the injection is followed by a leucolysis, which in the normal individual is slight, but in conditions accompanied by a leucocytosis this destruction is frequently intense. It is succeeded either by a secondary leucocytosis or by a return to the equilibrium. The leucolysis affects principally the polynuclear neutrophiles. The red blood cells are not much affected, there being a tendency to a slight diminution in their number. It is worthy of note that diverse substances, such as pilocarpine, atropine, digitalis, salicylate of soda, quinine, etc., have a similar effect, namely, a short initial hypoleucocytosis, followed by a hyperleucocytosis. Ether and chloroform have the same action. M. Bize has found that the antidiphtheritic and antistreptococcus sera have also the same action on the leucocytes. The author suggests that this similarity between the metallic ferments and the antitoxins may not be a mere coincidence.

The Absorption of Chloroform in the Later Stages of Anesthesia.—The amounts of chloroform absorbed late in anesthesia are not great, and the breaking down of the drug, which is said to take place in the body, is at the best a small quantity, according to the researches of B. J. COLLINGWOOD (*Jour. of Physiol.*, May 9, 1905). It would also follow that when once anesthesia has been fully established, the dosage of the chloroform should be adjusted to prevent the blood giving up chloroform, rather than with the idea of pouring more of the drug into the organism. Previous observations show that the dosage of chloroform required to abolish the corneal reflex constantly decreases with the prolongation of anesthesia, sinking at the end of five hours to as low as .5 per cent. It would thus appear that when the organism is fully saturated with chloroform a very low percentage is sufficient to maintain anesthesia.

The Action of Adrenalin.—Apart from the general poisonous properties that are suggested by its chemical structure, adrenalin has one peculiar power, according to T. R. ELLIOTT (*Jour. of Physiol.*, July 13, 1905). Independent body cells, nerve-cells and their processes, skeletal muscles and visceral muscles in union only with sacral and cranial visceral nerves are influenced by it, as they are by any featureless poison. Its single characteristic is the aptness to stimulate plain muscle and gland cells that are or have been in functional union with sympathetic nerve fibers. In all vertebrates the reaction of any plain muscle to adrenalin is of a similar character to that following excitation of the sympathetic (thoracico-lumbar) visceral nerves supplying that muscle. The change may be either a contraction or a relaxation. In default of sympathetic innervation plain muscle is indifferent to adrenalin. Extent of reaction varies directly with the frequency of normal physiological impulses to rapid change of tension received by the muscle in life through the sympathetic nerves. A positive reaction to adrenalin is a trustworthy proof of the existence and nature of sympathetic nerves in any organ. Plain muscle, when denervated, shows increase of the capacity for irritation by adrenalin than it had previously possessed. Sympathetic nerve cells with their fibers, and the contractile muscle fibers, are not irritated by adrenalin. The stimulation takes place at the junction of muscle and fiber. The irritable substance at the myoneural junction depends for continuance of life on the nucleoplasm of the muscle cell, not of the nerve cell. Such peculiar irritability makes the profound biochemical distinction between all post ganglionic nerves of the thoracico-lumbar-visceral class, whether motor or inhibitor, on the one side, and all other efferent nerves with their respective junctions on the other.

The Changes in the Viscosity of the Blood during Narcosis.—The viscosity of the blood does not remain constant during narcosis, according to R. BURTON (*Jour. of Physiol.*, July 13, 1905). It is increased by deep and lessened during light narcosis. These differences cannot be considered of great importance, and the changes which result from the administration of moderate doses of morphine and ether or morphine and chloroform must at most be very slight. The changes in the specific gravity pursue a parallel course to those in the viscosity, in the case of light ether narcosis. During narcosis from chloroform the inverse relationship was found to exist.

The Action of Hyoscines, a Study of Optical Isomers.—It has been shown by A. R. CUSHNY (*Jour. of Physiol.*, July 13, 1905) that while levorotatory hyoscyamine has a powerful action on the salivary glands, heart and iris, the dextrorotatory artificial base is almost devoid of effect on these organs. The author has since studied the differences in the physiological action of the two isometric hyoscines. Levohyoscine (lately called scopolamine) acts twice as strongly as the racemic base (artificial or dextrorotatory hyoscine) on the terminations of the secretory nerves in the salivary glands and of the inhibitory nerves in the heart. It may be inferred that a similar ratio holds in other analogous terminations. Levohyoscine and racemic hyoscine have the same effect on the central

nervous system in man and mammals, and on the terminations of the motor nerves in frogs, in which they do not seem to affect the central nervous system. From this it would appear that, as in the case of the hyoscyamines, the dextrorotatory hyoscine is practically inactive in the terminations of the secretory and cardiac inhibitory nerves, while it acts equally strongly with the levorotatory base on the central nervous system in mammals and on the motor nerve ends in frogs. On the other hand dextrohyoscine differs from dextrohyoscyamine in not stimulating the spinal cord in the frog, but this may be due to its being very rapidly excreted. Hyoscyamine is practically devoid of hypnotic action in man, when given in doses which do not affect the peripheral organs.

The Functional Connection between Auricles and Ventricles.—In 1893, His described a bundle of muscle-fibers lying in the septum between the right and left sides of the heart, which he believed forms a connection between the auricles and ventricles. H. E. Hering (*Pflüger's Archiv*, May 31, 1905) proves that this bundle, which he terms His' transition-bundle, or connecting bundle, really does functionally unite auricles and ventricles. A very small cut in the septum between the ventricles is capable of destroying the functional connection between the auricles and ventricles, provided that this cut is in the region of the bundle described by His. This discovery was made in the dog, but since the connecting-bundle is also found in the hearts of other mammals, including man, there is no doubt that in these the connecting-bundle has the same function. According to Retzen, in adult man this bundle is 18 mm. long, 2.5 mm. broad, and 1.5 mm. thick. In a four-year-old child, the greatest diameter is 1 mm. Since the connecting-bundle, corresponding to its relatively small size, can hardly be supposed to possess any other function, the question arises: Why do muscle-fibers carry the cardiac excitation, instead of nerves which have this for their proper function? The answer is that the excitation is carried from auricle to ventricle by muscle-fibers because in mammalian hearts the conduction of the wave of cardiac activity is a muscular one.

The Force of Contraction of the Gall-Bladder and the Course of Its Motor and Inhibitory Nerve Fibers.—To show the force of contraction of the gall-bladder and the course of its motor and inhibitory nerve fibers, U. A. Chase (*Bull. Johns Hopk. Hos.*, June, 1905) performed a series of experiments on dogs. By means of special apparatus and after the skeletal muscles had been paralyzed by curare, the splanchnic nerves were stimulated. All possible error from direct or reflex stimulations of the skeletal muscles were entirely excluded. The author states that it appears from the results obtained that the bladder is capable of contracting against a resistance such as is offered by a column of Ringer's solution 214.5 to 313 mm. high. Moreover, the sudden maximum increase of pressure against which the bladder is working is about 200 mm. It seems evident from these figures that the musculature of the bladder is comparatively weak, and that its contractions are not at all comparable in force to those of the urinary bladder, which, according to Mosso, may contract in the dog with a force sufficient to support a column of water two meters high. Indeed, the maximum force of contraction of the bladder does not much exceed the maximum secretion pressure as determined by Haidenhain. After experiments to determine the course of the motor and inhibitory nerve fibers of the gall-bladder, the author arrives at the following conclusions: (1) The musculature of the gall-bladder is provided with motor (constrictor) and inhibitory (dilator) nerve fibers. These fibers are found in the splanchnic nerves; (2) both the motor and inhibitory fibers arise from the spinal cord in the roots of the sixth to the thirteenth dorsal nerves. The maximum outflow for the constrictor fibers is in the tenth, eleventh and twelfth dorsal nerves. The dilator fibers appear slightly higher up and are most in evidence from the eighth to the twelfth dorsal nerves, inclusive.

PRESCRIPTION HINTS.

Gastralgia.—

℞ Arseni trioxidi ..... gr. 1/24
Extr. gentianæ ..... gr. ii.

M. et fiat pil. Sig. one t. i. d. between meals. In severe cases employ counter-irritation over the epigastrium by means of the following:

℞ Ol. cajuputi ..... ʒ i
Tinct. capsici ether ..... ʒ iii
Lin. camphoræ ammon. ..... ʒ iv

M. et Sig. For external use. Rub in for 5 to 10 minutes once or twice daily.

In still severer cases use following externally:

℞ Pulv. ipecac. ..... ʒ ss
Lin. crotonis ..... ʒ ss
Adipis ..... ʒ i

M. ft. unguent. (Sawyer.)

Dropsy of Advanced Mitral Disease.—

℞ Pulv. digitalis ..... gr. i
Pulv. scillæ ..... gr. i
Pil. hydrarg. ..... gr. i
Conf. rosæ gallæ ..... q. s.

M. Fiat pil. Sig. One to be taken thrice daily between meals. (Sawyer.)

For Occasional Use in Constipation.—

℞ Magnes. pond ..... ʒ ss
Ol. ricini ..... ʒ ss
Mellis depurat ..... ʒ i

M. fiat confectiv. Sig. One teaspoonful at bedtime. (Sawyer.)

Backache of Loaded Colon.—

℞ Sodii et potassii tart. ..... ʒ iss
Sodii bicarb. ..... ʒ ss
Acid. tart. vel acid. citric ..... ʒ iiiss
Ol. limonis ..... ♏ iv

M. fiat pulvis. Sig. Two teaspoonfuls to be taken dissolved in a tumblerful of cold or warm water. (Sawyer.)

Eczema.—

℞ Lead oleate ..... 24 parts
Liquid paraffin (B. P.) ..... 14 parts

M. et Sig. Apply locally. (Sawyer.)

Traumatic or Irritative Dermatitis.—

℞ Zinci oxidi ..... ʒ iiss
Ol. amygd. dulcis ..... ʒ v
Lanolin ..... ʒ v

M. et Sig. Apply to part on a cloth. (Sabouraud.)

Hyperidrosis of the Feet.—

℞ Sodii salicyl. ..... ʒ ss
Potass. permanganat. ..... gr. xlv
Talc. pulv. ..... ʒ i
Bismuth. subnitrat. ..... ʒ iss

M. et Sig. For external use. (Brocq.)

Alopecia.—

℞ Acidi acetici crystal. ..... ʒ iiss
Chloroformis ..... ʒ iiss

M. et Sig. For external use. (E. Besnier.)

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NEW LIGHT ON THE PNEUMOCOCCUS.

It may seem almost Utopian to expect that some day it will be possible to interpret disease in terms of mathematics. Yet no less distinguished an investigator than Ferdinand Hueppe has expressed the belief that at no distant date it will be possible to apply the language of the differential calculus in the solution of the problems of pathology; for disease is a function of a number of variables, such as heredity, nutrition, climate, bacteria, etc. Translating this into the ordinary phraseology of medicine, it may be stated that in order to gain a clear conception of the nature of any morbid condition, it is necessary to consider the extremely variable character of its etiological factors.

This applies with peculiar force to pneumonia, a disease which has recently challenged the keen attention of the profession, by virtue of its gradually increasing virulence in urban communities during the past two decades. The organization of the Pneumonia Commission at the instance of the New York Board of Health was a laudable recognition of the need of probing into the variations in the causes of the disease, with the view of exercising a more effective control of the latter.

It is quite natural that the first point of attack in this investigation should be the pneumococcus, for this is the most tangible of all the etiological factors in the disease, and the one most susceptible to hygienic control. The first burdens of the Commission were therefore transferred to the shoulders of the bacteriologists, and during the six months that these have been attacking the unsolved problems of the pneumococcus, they have not only added a fund of valuable information to the meager knowledge we already possessed, but they have also given an earnest of far greater additions in the near future. The interesting results of these researches have just been published in the *Journal of Experimental Medicine*, August 25, 1905.

The investigations were carried out in New York, Philadelphia and Boston, and special lines of research were assigned to different bacteriologists. The main problems concerned the occurrence and the varying virulence of the pneumococci and its relatives found in the human mouth in health and disease, the occurrence of pneumococci in the hospital wards, the study of the buccal flora before and after outbreaks of pneumonia, the varying vitality of the pneumococcus, and the question of mouth disinfection. Some of these subjects had already been investigated, but the discovery of newer and more precise methods of identification of the pneumococcus made a repetition of this work indispensable. The pathological laboratory of the College of Physicians and Surgeons, New York, served as the central laboratory for the organization and direction of the work, under Professor Hiss.

Professor William H. Park and Dr. A. W. Williams, assisted by a large staff at the Research Laboratory of the New York Health Department, found that the throat of a large percentage of healthy persons, whether living in the city or in the country, harbors typical pneumococci. A larger percentage of atypical pneumococci, many of which seem to be closely related to the streptococci, are found in healthy persons than in those suffering from pneumonia. These normal throats also show a lower percentage of stains of pneumococci virulent for rabbits than the cultures obtained from cases of pneumonia. One very important series of experiments led to the following conclusion, to quote the language of the authors: "Since the virulence of pneumococci may be rapidly increased for a susceptible species of experimental animal by successive passage, and since pneumococci obtained from most pneumonias are more virulent for experimental animals than those obtained from healthy

individuals, therefore the virulence of pneumococci from cases of human infection is probably increased for human beings; hence cases of pneumonia should be considered, to a certain degree, contagious, and since the virulence of the pneumococcus may be quickly increased, and since the organism is very prevalent in normal sputum, all possible measures should be taken to restrict public expectoration."

In view of this important finding, it is certainly pertinent to ask whether the municipal authorities are doing everything in their power to prevent public expectoration. Large signs are prominently displayed on the subway platforms warning the passengers against the possible penalties to be meted out to the spitting offenders, yet, judging by the extreme frequency of this act, there seems to be a general idea that expectorating on the rough roadbed between the tracks is not only allowable but is also a praiseworthy diversion.

That in the course of time an efficient antitoxic serum will be available in the curative treatment of pneumonia, is a hope founded on tangible experimental results. Park and Williams, by means of inoculating sheep repeatedly with a pneumococcus strain, succeeded in producing a specific protective power of sheep's serum for mice against not only the homologous strain, but also against certain other strains. There is also developed an increased phagocytic power in the sheep.

A point that has an important bearing on the subject of the seasonal distribution of cases of pneumonia, is the discovery by Warfield T. Longcope and W. W. Fox that among the various cultures obtained from the saliva of normal individuals, the percentage of the true pneumococcus type is not very large in the month of November; in December it increases enormously, to fall gradually to a low level in March and April.

One very important feature of the industrious research conducted by Dr. Leo Buerger at the Pathological Laboratory of Mt. Sinai Hospital, was the evidence it afforded of the communicability of the pneumococcus from one person to another. Patients may acquire the pneumococcus during their stay in the hospital wards, and this germ may remain in the mouth for a long time afterward. It is also found for varying periods of time in the mouths of patients that have recovered from pneumonia. Persons in whose mouth the pneumococcus has been repeatedly found to be absent, may acquire the organism by association with pneumonia cases or with normal individuals in whom the pneumococcus is present. Living and virulent pneumococci are found in the handkerchiefs and dishes of pneumonia patients and "positive normal" cases, and on the lips of drinking cups and in the sputum floating on the surface of the so-called disinfectant liquid in the sputum cups. The author also found that seventy-nine per cent. of the pneumococci found in the mouths of normal persons are virulent. From this result one may reasonably conclude that the more general practice of a strict toilet of the buccal cavity will go far toward diminishing the prevalence of pneumonia.

The investigations of Professor Philip Hanson Hiss lead him to conclude as follows: "It seems more than probable that practically every individual, at least during the winter season, when exposed to environmental conditions such as those existing in New York City, acts as the host at some time or other, and probably at repeated intervals, of organisms of the true pneumococcus type." He also suggests that the pneumococci stand in etiological relation to some, at least, of the "common colds." A lesson of extremely practical import may be derived from these findings, namely, in view of the fact that the exciting bacterial sense of pneumonia is almost universally present in the normal mouth, the main hygienic precautions should be directed toward maintaining at par the general bodily health, thus minimizing the possibility of constitutional invasion. This, however, leads to the subject of the other etiological factors of pneumonia, with which it is hoped future researches will cope as ably as the present investigations have wrestled with the bacteriological aspect of the problem.

One of the important factors in the communicability of pneumonia is the dissemination of moist or dried sputum, either by means of the atmosphere or by means of articles of clothing. A careful study of the viability of the pneumococcus after drying was made by Professor F. C. Wood. He found that "in moist sputum kept in the dark at room temperatures the average life of the pneumococcus is eleven days, while in the same sputum kept at 0° C. the average life of the organism is thirty-five days. In dried sputum in the dark the pneumococcus lives on an average thirty-five days; in diffuse light, thirty days; and in sunlight, less than four hours. In powdered sputum even when kept in the dark

the death of the pneumococcus takes place in from one to four hours. When exposed to sunlight death occurs within an hour. Sprayed sputum particles remain in suspension for twenty-four hours. When sputum containing pneumococci is sprayed the organisms rarely survive for more than an hour, and often die in less time. The mucus of the sputum exerts a destructive action on the pneumococcus. Exposure of bacterial spray to sunlight while in suspension results in the destruction of the pneumococcus within half an hour." It is pointed out by Dr. Wood that inasmuch as moist sputum does not give off bacteria even when exposed to strong currents of air, it may be considered as innocuous except to persons handling clothes, bedding, etc., which have recently been contaminated. "The danger of infection from powdered sputum may be avoided by ample illumination and ventilation of the sick-room in order to destroy or dilute the bacteria, and by the avoidance of dry sweeping or dusting." It is also shown that the spray perish in from a few minutes to an hour pneumonia patient, may, if the ventilation of the room is good, be suspended in the air for a number of hours. The pneumococci present in the spray perish in from a few minutes to an hour and a half. "The risk of infection from the pneumococcus is largely confined to those in direct contact with the person whose excreta contain the organism."

We have quoted at length from the contribution of Professor Wood, for his results furnish a nice scientific demonstration of facts which have already been partly taken for granted. In contradistinction to the tubercle bacillus, it is to be noted that the process of drying diminishes the viability of the pneumococcus. The effects of sunlight and ample ventilation justify the modern recognition of these agents as valuable factors in the management of cases of pneumonia.

In surveying this valuable series of contributions to scientific medicine, it may be noted that while many of the facts revealed have already been suspected, a number of entirely new and unexpected phenomena have been discovered. Among these not the least important is the fact that the species pneumococcus includes a wide variety of organisms, each of which has a variable degree of virulence, and that bacteria which have hitherto been classified among the streptococci belong or are closely related to the pneumococci.

GILT-EDGED UNDERTAKING.

ONE of the most marked characteristics of the American mind is perhaps the narrowness of the line dividing pathos from bathos. The prompt ability to see the ludicrous element in any situation, no matter how gruesome or incongruous it may be, is all pervading.

With us it is but a short step from the sublime to the ridiculous and the professional humorist will readily extract more than sermons from the cold sepulchral stones while the reporter of hangings and lynchings is painfully apt to find good in everything. For the business and details of the undertaker's art have long been as fruitful a source of amusement to the American scribe of the higher class as the mother-in-law jest has been to the minor paragraphist who follows suit with the items of the advantage of flowers on the table and ice on the butter.

Of these writers Mark Twain has been perhaps the most prolific with his "Undertaker's Chat," "The Art of Inhumation" and the considerate undertaker with the rat in Huckleberry Finn. It was, however, Bret Harte who first struck the key-note, in 1879, of the advance in scientific undertaking, and foreshadowed the possibilites and results that were then only in their infancy. A prophecy that has not only been fulfilled, but which, according to M. Bertillon, of Paris, has been surpassed, for in Harte's time the "process" claimed no other merit than the ability to lighten the mourning heart and to cheer the drooping spirits of the bereaved. But we must remember that the telephone was long regarded as a toy, impossible of practical adaption, while the power of steam was considered as only of sufficient value to "raise the lid" of the kettle in the experimentor's brain.

The article in question was one of Harte's earlier publications and was entitled "Sleeping Car Experience." It consisted principally, as will be remembered, of a dialogue between two passengers, who, having boarded the train in the middle of the night, at a way-station, had taken seats in the one vacant section and were indulging in conversation in a languid, perfunctory sort of way. The remarks, which were evidently the continuation of what had been already said, were opened by the "One Man" with a feebly concealed yawn. "Yes! Well I reckon he was at one time as popular an undertaker as I knew."

The Other Man (feeling that it was incumbent upon him to say something), "But why was he popular as an undertaker?"

The One Man (lazily), "Well, he was kinder popular with widders and widdererers—sorter soothen 'em, a kinder keerless way: slung 'em suthin here and there, sometimes outer the Book, sometimes outer hisself, ez as a man of experience as hed hed sorrer."

The Other Man: "But how did he lose his popularity?"

The One Man: "Well that's the question. You see he interduced some things into undertaking that waz new. He had, for instance, a way, as he called it, of maniperlating the features of the deceased."

The Other Man (quietly): "How maniperlating?"

The One Man (struck with a bright, aggressive thought): "Look yer, did ye ever notiss how, generally speakin', onhandsome a corpse is?"

The Other Man had noticed this fact. "Yes, Sir," continued the One Man, "This yer undertaker, this Wilkins, had a way of correctin' all thet. And just by maniperlation. He worked over the face of the deceased ontil he perduced what the survivin' relatives called a look or resignation—you know a sort of smile like. When he wanted to put in any extrys he perduced what he called—having regular charges for this kind of work—a Christian's hope."

The Other Man: "I want to know?"

"Yes; well I admit at times it was a little startlin', but it wazn't thet which made him onpopular."

The Other Man: "Well, what *did* make him onpopular?"

The One Man: "Extrys, I think. When Mrs. Widdecombe lost her husband she put up a big funeral for the deceased. She had Wilkins, and that undertaker just laid hisself out; just spread hisself. Onfort'nally—perhaps fort'nally in the ways of Providence—one of Widdecombe's old friends, a doctor up thar in Chicago, comes down to the funeral. He goes up with his friends to look at the deceased, smilin' a peaceful sort o' heavinly smile, and this yer friend turns round, short and sudden, on the widder settin' in the pew and kinder enjoyin', as wimen will, all the compliments paid the corpse, and he says, says he: 'What did you say your husband dies of, Marm?' 'Consumption,' she says, wiping her eyes, poor critter, 'Consumption—gallopin' consumption.'

"'Consumption be d—d,' sez he, being' a profane kind of Chicago doctor, and not bein' ever under conviction. 'A Christian's resignation be blowed. Hell is full of that kind of resignation. It's pizon. Thet man died of strychnine. Look at that face: look at that contortion of them fashal muscles. Thet's strychnine. Thet's *Riser's Sardonikus*.'"

Now, while we frankly admit that this early attempt to soothe the dull cold ear of death was not a complete and glittering success, yet we do claim that it was unquestionably the acorn from which the Bertillon oak has grown. In fact the situation resembles that of Dr. Oliver Wendell Holmes' lectures on physiology, when the galvanized leg of the frog refused to respond. "Gentlemen," the dear old autocrat was wont to say, "the experiment failed, but the principle remains the same." Then too, this matter of cosmetic effect is one of the things that they do better in France. Gaston's fingers are more adapted to the niceties of the "laying out" business than are those of Buffalo Bill, and in these matters Tennessee's partner cannot compete with Alphonse.

The Gallic adaptation, however, is yielding more practical results, according to the *Bulletin générale de Thérapeutique*, which gives an account of M. Bertillon's plan, lately adopted in Paris, of facilitating the identification of bodies by a modification of the ordinary photographic process. "Before the picture is taken a few drops of glycerin are injected with a Pravaz' syringe into the eyes of the corpse. After this, it is stated, the lids open and expression is restored to some resemblance of life itself. The glitter of the eyes, however, is still wanting. This is secured by a further injection into the sclerotic. This illusion is completed by rubbing the lips with carmine, and the body thus prepared is said to yield a *living portrait*."

Alas, poor Yorick! A living portrait, with glistening eyes and carmined lips. A living portrait that only, perhaps, requires a further injection of glycerin into the abdominal muscles to yield on pressure the faint echo of "Papa" and "Mamma," and thus to complete the resurrection and the life.

MECHANICAL LAVAGE OF THE BLOOD.

While the pharmacologists and the students of immunity are trying to discover, from their individual points of view, the substances with which to combat the various bodily infections, a simple and at first sight ludicrous method of

treating a certain class of intoxications has suggested itself to an ingenious French clinician.

M. Charles Répin (*Comptes Rendus de l'Acad. des Sciences*, July 24, 1905) has actually proposed the startling procedure of removing the blood from the body, and then, after treating this in a simple manner so as to remove its noxious qualities, to return it to the blood-vessels. The novelty of this form of therapeusis is fully equaled by the daring of its conception. If this proposition were not founded on a series of successful animal experiments, one would be justified in dismissing it as the flippant product of a riotous imagination. In fact, the results of these experiments are such as to warrant a careful consideration of this method of blood-renovation.

One year ago the author invented an instrument by means of which he could rapidly separate the red blood cells from the plasma, and then replacing the latter by a saline or nutritive solution, be able to return the new mixture to the blood stream. The essential part of this device is a centrifuge. Simply stated, the mode of conducting his experiments was as follows: A canula was inserted into the external jugular vein of the mammal experimented upon, and a certain quantity of blood allowed to flow into the mechanical separator. The blood was then quickly centrifuged, the plasma drawn off and replaced by a quantity of normal salt solution, isotonic with the blood, or of a solution of glucose or saccharose. The mixture of red blood cells and artificial solution was then returned through the canula, which had been left in place, to the interior of the vein.

It has been found that this process does not injure the red blood cells, for after the experiment no hemoglobinuria is observed. Definite quantities of the artificial substitute for the blood-plasma must be used. The isotonic solutions of glucose or saccharose are rendered alkaline by phosphate of soda (3 to 1,000). The amount of the artificial plasma added varies from 8 to 20 times the amount of blood that has been removed. If the proportion of blood is only one volume to eight or ten volumes of the diluting agent, then 2 or 3 parts per 1,000 of citrate of soda are added to prevent the formation of thrombi in the blood-vessels.

It is possible to thus remove one-fifth of the entire volume of blood from an animal without the production of ill effects. If this limit be exceeded dyspnea will occur. If this is slight it will rapidly disappear if further removal of blood be stopped. If not, then the dyspnea increases and is followed by acute pulmonary edema. The cause of the latter is the diminished viscosity of the blood produced by the large amount of water injected. Watching the respiration it is possible to prevent these dangerous sequences by controlling the injection. Thus, in a goat the author was able to remove one-fourth of the plasma at one time. A few hours later the operation may be repeated without ill effects.

This unique procedure represents an up-to-date version or modification of the old-time practice of bleeding. There can be no doubt that in some cases this heroic remedy produced its good effects by diminishing the amount of toxins circulating in the body. In fact, venesection finds part of its modern justification in cases of gas poisoning, uremia, and other intoxications, in which it furnishes a ready means of removing a dangerous excess of toxic material from the blood. The chief danger, however, that results from bleeding is the reduction in the oxygen-carrying capacity of the blood, as shown by the air-hunger that follows induced or accidental hemorrhage. This disadvantage of venesection is obviated to a large degree by the return of the red blood cells uninjured to blood stream. The saline or nutritive solution serves not only to suspend the red blood cells, but also to maintain the normal fulness of the blood-vessels, and the normal osmotic relationships of the blood. The stimulant properties of the injected fluid must not be overlooked.

It is pointed out by M. Répin that "deplasmatation," which is the name given to this scientific development of venesection, has absolutely no value for infections in which the poisons are fixed to the cells. Since this is the case with the greater number of intoxications, one can predicate only a restricted field of usefulness for this interesting form of therapeutics. It would seem to be indicated in those diseases in which the poison circulates freely in the blood, such as eclampsia and uremia. It remains for some bold clinician to test the actual curative value of "deplasmatation."

Mobile Free of Fever.—Dr. Joseph Goldberger, of the Marine Hospital Service, who was sent to Mobile, Ala., by Surgeon-General Wyman to investigate the report that there was suspicious sickness there, has visited every house where a person is ill. He said on September 11 that there is not the slightest evidence of a case of suspicious fever.

ECHOES AND NEWS.

NEW YORK.

Manhattan State Hospital Sports.—An interesting and varied program of athletic sports, postponed from Labor Day, was given on September 9 by the patients and employees of Manhattan State Hospital, Ward's Island. It included baseball, swimming-race, foot-races of various kinds, tug-of-war, basket-ball, and a nail-driving contest. Music was furnished by the hospital orchestra, and refreshments were served.

Fire in Rockefeller Research Institute.—A recent fire in the laboratory of the Rockefeller Institute for Medical Research, which occupies a wing of the Nursery and Child's Hospital in Lexington Avenue, near Fiftieth Street, for a time seemed to imperil the lives of the mothers and babies in the hospital. Prompt action on the part of the firemen prevented serious damage. The fire was started by an oily concoction boiling over in the absence of a physician, who was reducing a mixture intended for use in the treatment of pneumonia.

Antityphoid Campaign.—Five hundred engineers from various parts of the country who are interested in water works gathered at the annual convention of the New England Water Works Association at the Murray Hill Hotel on Wednesday. The convention continued in session four days. A number of important papers on the use of copper sulphate to guard against typhoid fever epidemics, arising from unfiltered surface water supplies, were read. This new treatment of water supply has aroused much interest among water-works engineers. Dr. George T. Moore, of Washington, gave a general exposition of the problem. Then Prof. W. P. Mason, of Troy, described the uses of copper sulphate. The destruction of typhoid fever germs by copper sulphate was the theme of D. D. Jackson, of Brooklyn. Prof. Henry Kraemer, of Philadelphia, then gave his views on the germicidal properties of metallic copper. An erudite paper on how the sulphate behaves and what its uses are in purifying hard and turbid water was contributed by J. W. Ellms, of Cincinnati. G. A. Johnson, of Columbus, followed with some facts showing how the sulphate is applied. Other papers on the problem of vanquishing the typhoid fever germ by the use of copper were read, and a general discussion followed.

The American Tuberculosis Exhibition.—Arrangements are progressing favorably for the American Tuberculosis Exhibition, to be held in New York, November 27 to December 9. Sanatoria and anti-tuberculosis societies in all parts of the United States will cooperate to make the affair a success, and it is expected that a large part of the material from the French Exposition, to be held in Paris in October in connection with the International Congress of Tuberculosis, will be shipped to New York for the American exhibition. The committee of arrangements is also planning a series of conferences on special phases of the tuberculosis problem, which will be open to the public and will be of popular interest and value. Recent developments of note in the antituberculosis campaign are the organization of State associations to fight the disease in Iowa and Kentucky. The Iowa Association for the Study and Prevention of Tuberculosis was formed at a meeting called for the purpose at Des Moines, on July 27, and attended by representative physicians and laymen from all parts of the State. The new society is in the hands of a strong board of directors, with ex-Governor William Larrabee as president and Dr. E. Luther Stevens, Des Moines, as secretary. The Kentucky Antituberculosis Association, also recently organized, has its headquarters in Louisville, with W. C. Nones as president and George L. Sehon as secretary.

PHILADELPHIA.

Enteric Epidemic at Nanticoke.—Typhoid fever has made its appearance in the small mining town Nanticoke, near Wilkesbarre, Pa. In the space of a very short time more than one hundred cases occurred and so rapid has been its spread that the opening of the public schools has been postponed. The source of the water supply is from a mountain lake.

Typhoid Fever Not Yet Eradicated.—There were but five wards from which cases of enteric fever were not reported last week; each of these wards is supplied entirely with filtered water, a fact that lead the health authorities to believe that those cases reported from wards reciving filtered water are imported from summer resorts or elsewhere, and are not to be credited to the city water. Last week 125 cases were reported in contrast to 62 the preceding week.

Still on the Look-out for Yellow Fever.—Last Wednesday the American steamship Shawmut arrived at Reedy Island Quarantine Station, having on board a sick sailor whose condition aroused the suspicion of the authorities and caused the vessel to be detained. While the physicians were not inclined to diagnose the case as yellow fever they saw in it some evidences of that disease. The crew was placed in quarantine, the vessel fumigated and then sent to its destination.

Scopolamine as an Anesthetic.—Surgeons of this city have recently turned their attention to the study of scopolamine, but instead of using the drug to quiet patients suffering from delirium tremens or the delirium of the acute infectious diseases as reported by Liepolt (*Berlin. klin. Woch.*, No. 15, 1904) they have injected the drug hypodermatically for the relief of pain produced by operation. Dr. Orville Horwitz did a Bottini operation on a man seventy-three years old at the St. Agnes's Hospital after injecting 0.1 mg. of the drug with the addition of 25 mg. of morphine into the patient's arm. The man remained quiet for two hours and then awoke without nausea or vomiting. Dr. A. C. Wood has been making similar experiments at the Philadelphia Hospital.

School Teachers Must Obey the Health Law.—In order that this may be accomplished Dr. Dixon writes to the principals as follows: "Your attention is respectfully called to section 12 of the act of Assembly of June 18, 1895, which declares that 'all principals or other persons in charge of schools as aforesaid (namely, public, private, parochial, Sunday or other schools) are hereby required to refuse the admission of any child to the schools under their charge or supervision, except upon a certificate signed by a physician, setting forth that such child has been successfully vaccinated, or that it has previously had smallpox.' Section 21 of the same act provides that the penalty for failure, neglect or refusal to comply with or violation of this requirement shall, for every such offense, upon conviction thereof before any mayor, burgess, alderman, police magistrate or justice of the peace, pay a fine or penalty of not less than $5 or more than $100, and in de-

fault of payment thereof be imprisoned in the county jail for a period not exceeding sixty days. I beg you to observe that in this matter the principal or teacher is responsible, not to the school directors, but to the health authorities of the state or the municipality, and that no action of the school directors can supersede the requirements of the law. Any attempt to shift the responsibility onto the shoulders of the directors would therefore be attended by serious risk. I do not allow myself to doubt, however, that your own intelligent appreciation of the importance of the strict enforcement of this law, both for the protection of the health of the children under your care, as well as of that of the entire community, and for the avoidance of the serious interference with education which such an outbreak of smallpox in a community always involves, will make further reference to penalties entirely unnecessary."

To the secretaries of the Board of Health Dr. Dixon sent the following: "Allow me respectfully to call your attention to the fact that section 13 of the act of June 18, 1895, requires that 'the health authorities of all municipalities shall furnish to principals or other persons in charge of public, private, parochial, Sunday or other schools, and to physicians, the necessary certificates or blanks for the uses and purposes' as set forth as required in section 12 of said act, which section reads as follows: 'All principals or other persons in charge of schools as aforesaid are hereby required to refuse the admission of any child to the schools under their charge or supervision, except upon a certificate signed by a physician setting forth that such child has been successfully vaccinated, or that it has previously had smallpox.' Section 13 provides in addition that 'the registry of said schools shall exhibit the names and residences of all children or persons admitted or rejected for reasons set forth in this act, and said registry shall be open at all times to the inspection of the health authorities.' In view of the above-recited requirements, and the near approach of the opening of schools, I would suggest the importance of at once making inquiry in order to discover whether the principals or other persons in charge of all schools (public, private, parochial, Sunday or other schools), and all physicans within your jurisdiction, have been thus supplied with the necessary certificates, blanks or registries as required by law. It will be the duty of your board to supply any deficiencies in this respect. It will also be its duty to notify each principal or teacher, as the case may be, formally and in writng, at least one week before the opening of the schools, of the requirements of the law and the penalties for its neglect or violation."

CHICAGO.

Additional Ground for Illinois Infirmary.—The Illinois Charitable Eye and Ear Infirmary have acquired 100 feet additional frontage on Peoria Street, just north of Adams Street, for $20,000, on which to build a modern fireproof addition to its present building.

Guilty of Illegal Practice.—For practising medicine without a license, John Pattie, of Peoria, was recently found guilty and fined $100 and costs. Pattie has appealed from the decision of the court, and claims that he practised under the special direction of a licensed physician.

Washington Park Hospital.—The cornerstone of this hospital, located at 6010-6012 Vincennes Avenue, was laid September 4, and distinguished Swedish physicians took part in the ceremonies. The structure will be three stories high, 125 by 44 feet, and will have a capacity of 75 beds. The cost is to be $50,000. It will be ready for occupancy next January, and with the present buildings will have a total capacity of 105 beds.

New Hospital for Canton, Ill.—The Misses Graham, of Washington, D. C., who were formerly residents of Canton, propose to furnish the necessary grounds and to erect a public hospital building thereon at Canton, to cost $15,000, and containing about twenty rooms, under the condition that an endowment of $20,000 shall be provided, that the hospital shall be free to all schools of medicine, and that at least five rooms shall be available for charity patients.

Tuberculosis Death Rate Decreasing at Dunning.—The death rate among tuberculous patients at the Dunning institutions has decreased 15.31 per cent. since they have been removed to the new consumptive hospital. Superintendent Podstata, in a report submitted to the County Board, recently said this result was due to the surroundings at the new hospital, which is considered a model of its kind, with plenty of fresh air and light. During March, April, May, June, July and August of last year the death rate of tuberculous patients was 42.52 per cent. During the corresponding months this year the death rate is 27.21 per cent. Superintendent Podstata recommends that a small separate ward be constructed for the care of the patients who are helplessly afflicted with tuberculosis.

Notice to Illinois Embalmers.—Secretary Egan, of the Illinois State Board of Health, has issued a notice to Illinois embalmers to the effect that under the provisions of the act approved May 13, 1905, no person shall embalm, or prepare for transportation, any body dead of a contagious or infectious disease, or embalm any dead body, or hold himself out as practising the art of embalming, unless he holds a license from the State Board of Health authorizing him so to do. After September 1, 1905, no transportation company operating in the State of Illinois will accept a body dead of any contagious or infectious disease, unless it has been prepared by an embalmer holding a license issued by the State Board of Health. After January 1, 1906, any person who shall embalm, or prepare for transportation, any body dead of a contagious or infectious disease, or embalm any body, or hold himself out as practising the art of embalming without having obtained a license from the State Board of Health, shall be deemed guilty of a misdemeanor.

CANADA.

The Canadian Medical Association.—The thirty-eighth annual meeting of the Canadian Medical Association was held in Halifax, N. S., August 22 to 25, under the presidency of Dr. John Stewart, Halifax, the general secretary being Dr. George Elliott, Toronto. It was the third largest meeting in the history of the association so far as actual attendance from the Canadian profession was concerned, and more than quadrupled the attendance at the former meeting, held in that city in 1881. Among those who attended was the Hon. Dr. Parker, of Halifax, the second president of the association, and there were but two others present who had been in attendance in 1881. In that year the farthest point from which a member traveled was London, Ontario; this year there were some from British Columbia. The formal opening took place on August 22, when the Reverend President Forrest, of Dalhousie University, opened the proceedings with prayer. Following him His Honor, the Lieutenant-Governor of Nova Scotia, welcomed the visiting delegates in the

name of the Province Down by the Sea. Then the Mayor of Halifax extended a welcome on behalf of the corporation of that city, and following His Worship, the president of the Medical Society of Nova Scotia, Dr. H. A. March, of Bridgewater, read an address on behalf of that society, which acted as hosts.

Dr. John Stewart then read the annual presidential address, after which Dr. D. A. Campbell, of Halifax, read the Address in Medicine, taking for his subject the history of the medical profession in Nova Scotia. The Address in Surgery was delivered the following day by Mr. Francis Caird, of Edinburgh, and in the afternoon of the same day Dr. J. W. Stirling, of Montreal, read the Address in Ophthalmology. On the evening of the next day Dr. Howard A. Kelly, of Baltimore, read the Address in Gynecology, his subject being cystitis in women. Following that were two lantern demonstrations of much interest, the first conducted by Dr. J. M. Elder, of Montreal, in the absence of Dr. J. Alex. Hutchinson, Montreal, on fractures as shown by radiographs; the second by Professor J. J. McKenzie, of Toronto University, on recent studies on the elastic elements of the aortic wall in relation to arteriosclerosis. On the morning of the last day a general discussion took place on obstetrics, the particular subject being "The Management of the Puerperal State." This was opened by Dr. Thomas Walker, of St. John, N. B., continued by Dr. H. L. Reddy, Montreal, and participated in by Dr. Albert A. Macdonald, Toronto; Dr. F. R. Eccles, London, Ontario; Dr. M. A. Curry, Halifax; and Dr. D. McIntosh, Pugwash. This proved an interesting feature of the meeting.

Reorganization of the Association.—The most important item of business considered was that of reorganization of the association on the lines of the British Medical and American Medical Associations. This led to the appointment of a special committee, consisting of one member from each province, with Dr. Alexander McPhedran, of Toronto, as chairman. This committee made an interim report before the close of the meeting and was continued. In the intervening time before the next annual meeting suggestions will be asked from the members of the association in the various provinces. The Committee on Public Health, appointed two years ago, was discharged and a new and larger committee appointed in its stead. The convener of this committee is Dr. E. P. Lachapelle, of Montreal, an advanced sanitarian. It was decided to meet in Toronto in 1906 at the same time as the meeting of the British Medical Association.

Election of Officers.—The following were the officers elected for the ensuing year: President Dr. Alexander McPhedran, Toronto; vice-presidents—Prince Edward Island, Dr. H. D. Johnson, Charlottetown; Nova Scotia, Dr. G. Carleton Jones, Halifax; New Brunswick, Dr. Emery, St. John; Quebec, Dr. H. S. Birkett, Montreal; Ontario, Dr. J. D Courtenay, Ottawa; Manitoba, Dr. S. P. Prowse, Winnipeg; Northwest Territories, Dr. H. G. McKid, Calgary; British Columbia, Dr. R. E. McKechnie, Vancouver. Local secretaries: Prince Edward Island, Dr. Simpson, New Glasgow; Nova Scotia Dr. J. R. Corston, Halifax; New Brunswick, Dr. J. A Scammell, St. John; Quebec, Dr. Ridley McKenzie, Montreal; Ontario, Dr. Harold Parsons, Toronto; Manitoba, Dr. J. R. Davidson, Winnipeg; Northwest Territories, Dr. J. Hislop, Edmonton; British Columbia, Dr. W. H Sutherland, Revelstoke. General secretary, Dr. George Elliott, Toronto; treasurer, Dr. H. Beaumont Small, Ottawa; executive council, Drs. W. P. Caven, Albert A. Macdonald and F. LeM. Grasett, Toronto.

GENERAL.

No Plague Cases on the Isthmus.—There have been no further developments regarding the supposed presence of the bubonic plague on the Isthmus. The quarantine has been entirely raised. The sanitary conditions of the Isthmus are comparatively good. There is no yellow fever in the city of Panama.

Official Cholera Bulletin.—An official bulletin issued in Berlin on September 11, says, that 16 cholera cases and 6 deaths were reported from noon, September 9, to noon, September 10, and 15 cases and 6 deaths from noon, September 10, to noon September 11, making the totals 170 cases and 58 deaths.

Russia Not Responsible.—The Government at St. Petersburg reiterates, officially, that the outbreak of cholera did not originate in Russia, as the raftsmen among whom the disease was first discovered, although they came down the Vistula, had been in Germany a fortnight before they became sick, whereas ten days is the period of inception for cholera.

Bites at Night.—At the beginning of the campaign in New Orleans it was stated by the official fever fighters that the stegomyia was to be feared principally during the hours of daylight, biting seldom at night. Health Officer Khonke, however, made this important statement recently: "The stegomyia is a day mosquito, but it has been discovered that shortly after the twelve days' infection it also becomes a night mosquito and bites at night. We did not know this until very recently."

Canal Officials Return.—A number of Panama Canal officials on leave of absence recently arrived in New York on the steamship Mexico. Mr. Benson, auditor of the Canal Commission, said that malaria was more of a cause for worry on the Isthmus than yellow fever. When the Mexico left Colon on September 5 there were but four cases of the fever there. Ten passengers and seven of the crew were found to have abnormal temperatures, and were removed at Quarantine for observation.

Friction in Fever Fight.—Lack of faith on the part of some of the authorities in the mosquito as the only transmitter of yellow fever is given as one of the causes of the controversy which has resulted in Dr. Tichenor's withdrawal from Tallulah, La., whither he had been sent by the State Board of Health to take charge of the situation. Until Dr. Tichenor reached Tallulah no one had any idea of the extent of the disease there. Dr. Tichenor at the end of his investigation telegraphed that the whole town was infected, that the situation was exceedingly serious, and that help was needed. The new cases and deaths since have borne out his first telegrams. Dr. Tichenor immediately proceeded to apply the mosquito theory rigidly, but found that some of those in authority did not altogether believe in it, with the result that friction resulted, and he asked to be relieved. Efforts are being made now to send Dr. Ezdorf to Tallulah.

The Last Battle of a Hundred Years.—The Rev. Beverly Warner, of New Orleans, in a recent issue of *Charities*, writes: "We are not concerning ourselves much these days with questions as to how the fever came in, or trying to shift responsibilities. We are fighting what we believe to be the last battle of a hundred years' war. It is the profound conviction of the health authorities, federal and local, that New Orleans need never again fear an epidemic. When the last case has passed into history, we expect to have proved that the fever is no longer a mysterious enemy, coming from an unknown quarter, and striking in the dark—but an open and well-known foe, against whom we may

always be on guard, and with which we have a certain knowledge of being able to cope. Under the sane and experienced leadership of the Marine Hospital Service, we are fighting at our own cost and charges in men and money. And we expect to win." This expectation is being realized, for at present the fever is spreading only among smaller towns, where the enthusiasm and system of the New Orleans campaign is wanting.

The Progress of Cholera in Germany.—The latest reports from Germany are to the effect that cholera has scattered itself over 32,000 square miles. The district extends from the River Oder northwestward to the Russian border, about two hundred and fifty miles, and from Danzig to Grozisko, south of Posen 150 miles. All this shows not only how difficult it is to guard against the inroads of an infectious disease in more or less densely populated regions, where intercommunication is so varied and intricate, but how impossible it is to educate the people generally in the necessary means for their own safety. The local health authorities are, however, meeting the issues in a valiant and thorough manner.

OBITUARY.

DR. THOMAS MENEES, one of the best known physicians in the South, is dead at his home in Nashville, Tenn., at the age of eighty-three years. Dr. Menees was a member of the Confederate Congress and had been a professor in several Southern colleges.

DR. JAMES LAWS, for many years a surgeon in the navy and for a time fleet surgeon under Admiral Porter, died at Washington, D. C., September 13, aged seventy-eight years. He was born in Philadelphia, was graduated from Jefferson Medical College and entered the navy as a surgeon. He was chief surgeon of the Kane Arctic relief expedition, and received from Queen Victoria a decoration for his services. After the close of the Civil War he resumed the practice of his profession in Philadelphia until 1883, since when he had been an examining surgeon in the Pension Bureau at Washington.

SOCIETY PROCEEDINGS.

HARVARD MEDICAL SOCIETY OF NEW YORK CITY.

Regular Monthly Meeting, held May 27, 1905.

The President, Charles G. Schram, M.D., in the Chair.

Tendon Transplantation for Deltoid Paralysis.—Dr. Royal Whitman presented a patient six years old who had been a sufferer from complete paralysis of the deltoid. As a consequence of this the humerus hung down out of the socket at the shoulder-joint, and the arm swung absolutely helpless and flail-like. The deformity was corrected by the transplantation of a portion of the trapezius muscle along the shaft of the humerus inserted into the deltoid. When the operation was done the arm was put in an elevated position, the muscle fibers being drawn taut and then was gradually brought downward at intervals afterward until it came to the side of the body. Now the little patient can swing her left arm and put it up above her head, and considers that she can use it as well as other people. As a matter of fact, however, there is very little power in it, but the child has learned to use other muscles in such a way as to help out whatever of power was gained by the transplantation of the trapezius.

Stimulation of Effort.—In these cases before operation as the result of the palsy, children cannot be brought to exercise any effort and so cannot be trained to use whatever little of muscular power they possess. After the transplantation it is necessary to bring training into effect, so as to encourage the use of all the muscles in the neighborhood. While this was impossible before, it is usually not difficult after operation. The palsy in this case was due to an anterior poliomyletis, which affected the child at the age of about two and a half years and left the deltoid completely paralytic. The fibers of the trapezius were fastened to the atrophied deltoid by strong silk sutures of braided silk, which were allowed to remain in place, and have given no difficulty, as they do not in cases where asepsis has been complete.

Echinococcus of Liver.—Dr. Henry C. Coe presented an echinococcus cyst of the liver which had been removed from a patient operated upon for the relief of symptoms pointing to the kidneys. There had been no suspicion of the presence of the cyst until after the opening of the abdominal cavity, and the exploration of the liver region.

Amenorrhea and General Diseases.—Dr. Coe read a paper on the association of amenorrhea with chronic disease. He called attention to the fact that while absence of menstruation, especially after it had once been established, is usually attributed to some affection of the genital organs, not infrequently it is really due to some chronic systemic disease. He has recently had under observation several cases of amenorrhea which ultimately proved to be acromegaly, a disease that is very difficult of diagnosis in early stages. These cases called his attention to the fact that not infrequently diseases of the ductless glands are associated with disturbances of menstruation and usually in the direction of lessening the amount of menstrual flow. The thyroid gland has been of interest to gynecologists for various reasons, but it is evident that the other ductless glands must also be considered because of their effect upon symptoms that come to the gynecologist for treatment.

Illustrative Cases.—One of the first cases was that of a young woman, aged twenty-five years, who suffered from amenorrhea for a considerable period, after having begun to take on flesh. She was married, and it was the sterility of the marriage that brought her to the physician. In this case some marked atrophic changes were found in the uterus, though there had been no hot flushes and no other symptoms of a precocious nature. The taking on of weight recalled somewhat the similar occurrence after castration. In this case thyroid extract was given, which at times proves helpful, though most of the cases are not relieved by it. Some of these patients continue in good health, after their amenorrhea has set in, but many of them decline in health or show symptoms of some constitutional disease.

Acromegaly.—A young woman who presented a marked tendency to adiposity, but with no previous menstrual signs and no local changes in the uterus, began to suffer from scanty and then absent menstruation. Thyroid extract was given, and the faradic current was applied to the thyroid glands, but without effect. In a careful examination made under an anesthesia no cause for the menstrual condition could be found. A year later the coarseness of features and the enlargement of the extremities so characteristic of acromegaly became manifest, and the patient suffered from the intense headache and some of the eye symptoms that indicated the

presence of brain tumor. There was no doubt that the original amenorrhea and tendency to accumulation of adipose tissue was a primary symptom of the affection of the hypophyseal gland.

Adiposity and Coarse Features.—A young girl, aged eighteen years, came under observation not long since, gave a history of having had no menstruation for nearly a year. During this time she had gained much weight, and now weighed two hundred pounds. She had always been stout, but there had been a marked increase in the tendency since the absence of menstruation asserted itself. She already presented the coarseness of features that were suggestive of beginning acromegaly. Besides, there was considerable mental sluggishness, though as yet no complaint of headache. A bimanual examination made per rectum showed the presence of a small uterus, but no pathological condition. The administration of thyroid extract did not help the patient, and the acromegalic tendencies have continued. The frequency with which such cases present themselves for treatment for sterility is rather remarkable, and it is evident that if patients' cases are to be properly understood, there must be a careful review of the history, with the idea of recognizing the possible presence of any affection of the ductless gland.

Curettement and Non-menstruation.—In certain patients the endometrium seems to have a much lessened activity as regards its reproductive powers than in others. In two cases Dr. Coe has seen complete failure of menstruation follow curettement. It is evident that careful precautions must be taken not to allow some of these general diseases that are already beginning to lessen the menstrual flow, to be an unrecognized factor in these cases. In patients in whom the cause for the amenorrhea seems without doubt to be due to some defect of the ductless glands, the administration of these substances does not always or indeed usually prove of much service. Dr. Coe has tried extracts of petuitary and submammary glands both without success. In Hodgkin's disease it is the usual rule for the patient to suffer from scanty menstruation and then, in the course of the disease, to have menstruation stop entirely. Usually any treatment that brings about any amelioration of the Hodgkin's disease will also restore the menstruation; but the outlook is very unfavorable.

Petuitary Therapeutics.—Dr. Howard Lilienthal said, in discussing Dr. Coe's paper, that the use of extract of the petuitary body could not be expected to do any good in acromegaly, since the disease was really due to an enlargement of the hypophyseal gland, and this enlargement was usually malignant. Too much of the specific substance is already finding its way into the circulation, and the addition of further material of the same kind from without would, if possible, only add to the symptoms. Dr. Lilienthal said that Kocher, of Berne, in studying the cases of myxedema consequent upon the ablation of the whole thyroid, which produced the so-called cachexia strumipriva, noticed that amenorrhea was among the first symptoms.

Antagonism of Thyroid and Ovary.—Dr. Coe said, in closing the discussion, there seems to be no doubt now in the minds of physiologists and gynecologists that there is a distinct antagonism between the thyroid and the ovary. By this, of course, is meant that the internal secretion of the ovary which undoubtedly exists, has some action opposite to that of the secretion produced by the thyroid. It is not an unusual thing to find an increase in size of the thyroid, during menstruation. An enlargement of this gland during pregnancy is almost the rule. In these cases of absent menstruation, the thyroid is sometimes diminished in size, but sometimes it is unaffected. Undoubtedly there is some close relationship between these structures, and yet extract of thyroid fails to be of service in many cases.

Gunshot Wound of the Abdomen.—Dr. George T. Chase reported a case of gunshot wound of the abdomen, with perforation of the stomach and intestines, treated by operation, and followed by cure. The patient was a woman of twenty-nine years, married, who during a drunken debauch shot herself with a revolver of small caliber at 3 A.M. She was taken at once to the Hood Wright Hospital, where Dr. Chase saw her about 5 A.M. She was suffering from moderate shock, and the wound of entrance of the bullet was on the left side, just below the costal cartilages, while the wound of exit was on the opposite side, somewhat posterially, so that the bullet has passed straight through the upper abdomen. There was no vomiting, and no urinal disturbance. It was deemed advisable, however, to operate, and the penetrating wounds of the hollow viscera, which were found, showed the propriety of this.

Injured Viscera.—The bullet had penetrated the stomach anteriorly and passed out posteriorly. It had penetrated the descending colon and also the right kidney. The wound in the kidney was through the substance of the organ and not the pelvis. Notwithstanding the presence of these wounds , the contents of the intestinal tract were not found in the peritoneal cavity. After the wounds had been tied up, the kidney wound was flushed out with saline solution, and drainage inserted in this neighborhood. Pneumonia developed on the seventh day, and yet the patient recovered from it. Urine flowed for some time from the posterior wound, but gradually this ceased, and now the patient seems entirely well. One of the important elements in the favorable termination of this case was undoubtedly the fact that the woman like all suicides, wanted very much to get well. The favorable points in the case besides this were the smallness of the projectile, which was probably not more than 22-caliber, the lack of delay before the operation was performed and the excellent physical condition of the patient apart from her drunkenness.

Size of Projectile.—Dr. Howard Lilienthal said that there are two things that make gunshot wounds especially favorable. If the projectile is small, little damage is done and even perforating wounds will sometimes not leak. The old-fashioned bulldog revolver with a smooth bore made a more ragged wound and was more likely to be folowed by septic conditions than the rifled arms of more modern days. If the colon is full then there is danger of perforation. Had the stomach been full on this occasion the patient would surely have run a greater risk. The absence of food in the stomach and intestines is what seems to account for the better results in abdominal wounds of colored patients than in white patients. Colored folks are not quarrelsome as a rule when they have had enough to eat. It is when starving that they are more likely to get into deadly quarrels.

The rule for operation in perforating wounds of the abdomen in civil life is that where circumstances are favorable, and the patient is seen not long after the accident, operation should be performed. In war, however, owing to the lack of facilities for aseptic operation, the opposite rule holds. The percentage

of recovery in war times is not so good in operated cases with the high power of explosive and small-caliber bullets.

Non-Operative Recovery.—Dr. Henry C. Coe said that during his first year of practice he was called to see a severe case of revolver wound of the abdomen, in which the ball had penetrated the abdominal cavity. The patient was a cousin, college graduate and athlete, who was disturbed by finding a burglar in the house. He got up and grappled with him and the burglar held a revolver of 45-caliber against his abdomen and fired. The shock was not enough to prostrate the patient at once, and he succeeded in preventing the burglar from firing again. The incident took place in the country and a country physician was called, had the good judgment not to probe the wound, but simply sealed the anterior wound and allowed the posterior to remain open. No peritonitis resulted and at no time was there any pain. There was some extravasion of urine through the posterior wound showing that, as in Dr. Chases' case, the kidney had been wounded. There was no rise of temperature, however, and the patient proceeded to make an uninterrupted recovery, evidently due to his strong and healthy constitution. The wound was inflicted in the early morning hours, when the viscera were empty, and this seems to have been the other favorable factor. For sometime subsequently he suffered from pyelitis, but was able to continue his athletic exercises though in cold weather there was discomfort in that kidney. Some years later he was able to pass a medical examination for insurance, and now there seems no doubt that he has entirely recovered from the effects of the wound.

Pushing Aside of Tissues.—The most interesting thing with regard to bullet wounds made by the larger projectiles is that occasionally when they are slow going, they push the hollow viscera aside or fail to wound veins or arteries because these yield and allow them to pass. Dr. Lilienthal recently saw a case in which a revolver wound was inflicted just below the eye, and the ball entering a very short distance below the orbit, passed out just behind the mastoid, and yet, in spite of all the important structures that lay in its path, it seemed to have been perfectly direct, not a single one of them was hurt.

Nephrolithiasis.—Dr. Howard Lilienthal read a paper describing some experiences with kidney calculi. The first case was that of a young man of thirty-two years, who had the usual characteristic symptoms of renal colic followed by profuse hematuria. He suffered for an hour before being seen and passed almost pure blood. After a hot bath and perfect rest for some hours, the pain quieted down and he was able to be about the next day. Large quantities of water were advised and a favorable prognosis was given. The patient was directed to take four quarts of water between meals. Over a year later a stone was passed and the patient has been perfectly well ever since. In this case some pyelonephritis developed, causing the presence of albumin in the urine. For a time this prevented the patient from taking out insurance, but subsequently the condition improved, and all the symptoms disappeared. This is now several years ago, and there has been no further complaint. A second case occurred in an older man of sixty-three years, who had his first attack at this age. He was treated just as was the first one, and after drinking plentifully of water for some months, passed a stone, since when there has been no further trouble. In the third case the patient was admitted to Mt. Sinai Hospital with the diagnosis, typhoid fever. There was a marked leucocytosis present, and no Widal reaction could be found. There was some local tenderness in the right iliac region, but all the urine contained red blood cells, and the right kidney was larger than normal. The X-rays were employed, but no stone could be found. After a time an abcess pointed in the flank and was opened with the evacuation of pure pus. For a time this was thought to be a subphrenic abscess from an old appendicitis, but after a time urine came from the wound, and it was evident that the kidney was involved. The wound healed after a time, but later there occurred exacerbations of symptoms, when the temperature rose to 105° F. This patient also was treated with large quantities of water and after a time the sinus closed.

Fallibility of X-Rays.—In a subsequent case a young man of thirty-one years, who had suffered from characteristic renal colic four times, each attack being more serious than the previous one, and each followed by blood in the urine. A careful X-ray examination failed to disclose any hint of the presence of stone. He too was placed on the water regime, and after a time he passed several stones. Phosphatic stones are easiest affected by the water treatment. In general it may be said when only one or two attacks of renal colic have occurred it is always well to give this method of treatment a thorough trial. When many stones are present Dr. Lilienthal considers that it is more advisable to remove the kidney entirely than to do a nephrotomy.

Reflex Anuria.—In a certain number of cases almost any manipulation of the urinary tract in certain sensitive individuals may lead to complete stoppage of the urine. In one case under Dr. Lilienthal's care, the patient was a bad subject because of cardiac and asthmatic complications. As the result of an examination by the uretoscope, complete anuria occurred, and lasted for forty-eight hours, after which the anuria disappeared and was followed by a free flow of urine. Unfortunately a pneumonia subsequently developed and the patient died. In another case where the patient complained of a dull pain in the right flank and there was a distinct tenderness in the right hypochondrium, many stones were removed from the right kidney, but for several hours afterward not a drop of urine was passed. This condition passed off after a time, however, and is evidently one of reflex anuria, though of course the thought that there might be no other kidney present proved a source of worry.

Indications for Operation.—When the stone is very large or when there have been repeated attacks of renal colic, operation is indicated. Otherwise water diuresis should be employed, a quart of water being taken at a sitting within fifteen minutes. This should be repeated four times a day. Whenever pyonephrosis is present operation is indicated. Reflex anuria has been denied and the symptoms attributed to it have been said to be uremic. There is no doubt however that complete anuria from nervous reflex can occur. There is no need of haste in the treatment of the condition, as such patients will live from seven to ten days, even though they are not passing a single drop of urine. Life endured for eight days in the patient from whom the solitary kidney was removed, and true uremia did not develop. After a time there was nausea, and the patient became edematous but there was no convulsions. Various

methods of treatment then may be tried before operation need be considered necessary.

Inversion of Patient.—Dr. Cabot stated that following Dr. Lilienthal's suggestion, he has found that if patients are advised to lie down as far as possible in an inverted posture the hips and legs being much higher than the body the attacks of renal colic may be brought to an end. Subsequently, under the water treatment, such stones may be passed absolutely without pain. In one case in Dr. Cabot's experience this was true, and the only warning the patient had of the passage of the stone was its dropping in the water-closet, whence it was recovered. Dr. Cabot has kept kidney calculi for a year in piperazine solution, but without effect. He considers that reflex anuria from manipulation of the bladder may readily occur and he has seen it last for many hours. The rule, however, is that it passes off without any special treatment.

Hysteric Renal Colic.—Dr. Coe said that it must not be forgotten that in certain highly neurotic women attacks closely resembling renal colic may develop. Some years ago he was called to see a young woman who seemed to be suffering from typical renal colic. Morphine did no good, and chloroform had to be employed for her attacks, several of which occurred. The urine was very scanty and it was considered that a calculus would surely be found. Two of the best surgeons in the city were called in consultation and the kidney was opened, but no trace of a stone could be discovered. There was a rather stormy convalescence, in which the pulse would frequently rise to 140 and the family usually in the night would be summoned to her bedside for a dying scene. Two weeks after the first operation there was a typical attack of renal colic apparently on the other side. Dr. Coe immediately used ether in order to overcome the pain and made the remark that this was what he should have to do every time the attack returned. There was no further occasion to resort to the etherization.

Dr. Coe said that X-ray pictures are apt to be misleading in some cases and always require to be done by an expert and all their features carefully analyzed. He knows of a case in which even a bullet was thought to be present in the X-ray photograph and yet proved not to be where located.

Dr. Lilienthal said that on several occasions in his experience the X-rays have suggested a false diagnosis. In one case there was a distinct shadow present which was thought to be a stone in the ureter. Later examination by an expert in the use of the X-rays led to the report that this apparent stone was really a sesamoid bone, in the obturator muscle. In a member of the house staff who was suffering from renal colic, having every day two attacks, there seemed to be at least three stones present. Later, however, this was demonstrated to be a mistake, and none was found.

Liver in Uremia.—In many cases of uremia the liver is affected as well as the kidneys. In fact, the modern explanations of uremia nearly always include a reference to degenerative conditions of the liver. In anuria it occurs after kidney operations. Not infrequently affections of the liver are found to be present and it is this rather than the operative intervention in the urinary tract that leads to the serious result. In the light of this close association of hepatic and renal lesions it becomes advisable to estimate the condition of the liver before operating upon the kidney.

JOHNS HOPKINS HOSPITAL MEDICAL SOCIETY.

Regular Meeting held April 17, 1905.

The meeting was devoted to comparative surgery, a report being made of the work done in the course in operative surgery on animals by the third-year class of the Johns Hopkins Medical School. Dr. Cushing, by way of introduction, emphasized the importance of building up a veterinary hospital in connection with surgical teaching—not only for the teaching purposes proper, but also by way of disarming the criticism, perhaps a just one, which was made against the reckless use of material involved in allowing students to operate on healthy animals. Operative surgery was usually taught by work on the cadaver; it was therefore confined to operations on the extremity and ligation of arteries. But the absolutely essential instinct to surgical cleanliness, the ability to handle living tissues, skill in controlling hemorrhage—these things could not be learned from a cadaver. Nor was it possible to teach or to learn visceral surgery in this way.

When the course in animal surgery at the medical school was started, operations were done for hypothetical lesions. The material was not then necessarily wasted, but could often be used in one of the laboratories; a gastrostonized dog, for instance, furnished the physiologist with gastric juice for study, and so forth. Nevertheless this method involved needless operation; and criticism of this feature only began to be disarmed when animals were brought in with lesions which needed treatment. For the future, then, the plan is to build up a veterinary hospital so that animals may receive necessary surgical attention and students may receive useful surgical instruction at the same time.

Hemorrhagic Cysts of the Thyroid.—Mr. Faris reported two cases of this condition occurring in dogs. The first was in an Irish setter. It had caused interference with respiration, and cure was effected by its removal. The second occurred in a hound, was associated with bad temper, muscular twitching, loss of hair, increase in weight and dryness of skin. No exophthalmos was present. The cyst was removed, but without much improvement in the dog's condition. Both tumors proved to be thick-walled cysts, containing dark red, grumous material made up of shadows of red blood cells and cholesterin. The pathology of the thyroid in dogs was said to be similar to that in man. Hemorrhagic cysts, while rare, were occasionally reported. There etiology was still undetermined. Trauma probably plays a part and changes in the vessel walls with rupture probably do the rest.

Uterovaginal Prolapse.—Mr. Thacher reported two cases. The first was an acute one complicating labor in a bitch. The vagina and cervix were prolapsed, the bladder was out of the pelvis, there was inability to urinate, and the animal was in bad condition. A uterus containing nine pups was removed and the prolapsus reduced. Death occurred in fifteen hours, hydronephrosis and localized peritonitis being present. In the second case an irreducible mass protruded from the vulva and two operations were required to correct the condition. Obstetrical complications were said to be common in animals, and death often occurred without delivery. Acute prolapse was most frequent in the herbiverous animals and the immediate cause was often a very full uterus.

Inguinal Hernia in the Dog.—These cases were reported by Mr. Beall. The first patient showed an irreducible inguinal hernia with cystocele, and the

radical hernia operation was done. Death occurred on the second day, the dog showing ulcers of the stomach and an atrophied right kidney. The second patient had a bilateral inguinal hernia. The two sides were operated on separately and complete cure resulted. In the third dog the hernia contained the omentum and the round ligament. Hernia in the dog is a very common condition, the commonest variety being the mid-ventral. The inguinal form occurs much more often in the female than in the male—due probably to the occurrence of pregnancy and to the fact that normally a bitch has practically a patent canal of Nuck. In the male, too, the tunica vaginalis retains its connection with the peritoneum, so that the anatomical facts alone do not explain the occurrence of inguinal hernia which is relatively rare in male dogs.

Canine Tumors.—This series was reported by Mr. Ortschild. The first was an adeno-carcinoma of the breast with glandular metastasis. The complete operation was done. Death occurred from cancrum oris. Mixed teratomata over the breast and thorax were found in the second case. These on section showed cartilage, adeno-carcinoma, carcinoma simplex and bone. In another dog a cyst adenoma of the breast was found and removed. This patient died from a phagedenic ulcer of the mouth. In a fourth case a mixed tumor of the breast, which had succeeded to a "milk-breast" following a bite, was removed. Cure resulted. An intracystic papilloma of the breast with metastases, a fibrolipoma of the vaginal wall and a hygroma of the right shoulder were also reported. The last tumor of the series was a pedunculated growth arising from the lower abdomen and just swinging clear of the ground when the dog walked. It was removed, and proved on section to be an adenoma. Tumors—particularly carcinomata of the skin and mammæ—are common in dogs. Fibrontat. enchondromata and sarcomata of the breast are also seen. Dr. Bloodgood showed the specimen of a melanosarcoma of the liver occurring in a horse.

Meeting held April 31, 1905.

Analysis of 221 Cases of Typhoid Fever.—This series was reported by Dr. Thompson, of Worcester, Mass. The epidemic had started among workmen in one of the suburbs of Boston, and was traced definitely to a privy infection. The cases were treated at the Boston City Hospital. The majority were males and ranged in age from eight to sixty-three years. Sixty-five per cent. were in the first three decades of life and 5 per cent. gave a history of previous attack. A motley array or symptoms was seen at the onset; deafness was initial in three cases. The febrile period varied from 7 to 86 days and relapses occurred in 21 cases. Rose spots were present in 69 per cent., sweats were a striking feature in two cases, and herpes was noted in one case; 23½ per cent. showed a subnormal leucocyte count. Myocarditis was marked in two cases, thrombosis was seen in seven, infarct of the lung in one and parotitis in two. Nausea and vomiting were troublesome in five. Hemorrhage occurred in 22 patients, distention was marked in 23 and in two cases fatal perforation occurred. The spleen was palpable in 69 per cent. of the cases noted. True catarrhal jaundice was present in one case. Four showed epistaxis, three pleurisy and seven bronchitis. The ear was most often affected of the organs of special sense. Retention of the urine occurred in six cases, acute nephritis in two. Cystitis was seen three times, hematuria twice. Two patients showed acute mastitis. One patient went to term normally during the disease and was delivered without event. Necrosis of the nasal septum was seen once. The Widal reaction was positive in 93 per cent. of the cases noted. The mortality of the series was 12 per cent. The features exhibited by the cases were the frequncy of a typical typhoid state, the notable implication of the central nervous system and the inefficiency of sponging as compared with treatment by tubs.

Painful Heels.—Dr. Baer reported five cases of this condition. The first was a man of eighteen who had had gonorrheal urethritis three months previously and whose discharge was still present on admission. Both heels were extremely painful, no flatfoot was present and the radiograph showed exostoses beneath the os calcis on both sides. They were both removed by operation and cure was complete. The second patient complained of pain in heels and ankles. There was history of an attack of gonorrhea nine months previously. The os calcis was found thickened, but the patient refused operation. In the third case there was pain in the heels and back. The patient had had three attacks of gonorrhea. There was a spot of extreme point tenderness at the attachment of the plantar fascia. The exostoses were removed by operation and, though cultures were negative, the sections showed diplococci which decolorized by Gram. The fourth patient denied gonorrhea but had had an inguinal bubo. Pain in the heels had been present for several months. There was tenderness on pressure over the heel and on stretching the plantar fascia. The radiograph showed exostoses. These were removed and a pure culture of the gonococcus grown from them. In the fifth patient exostoses were removed but were sterile on culture. Operation, however, gave complete relief.

The primary seat of the deposit in these cases seemed to be in the plantar fascia from which there was a downgrowth into the periosteum. The exostosis was always situated at the attachment of the plantar fascia, but in some of the cases there was also thickening of the sides of the os calcis. Motions were not limited, but there was a characteristic gait, the heels being used little or not at all. When the spine was affected the symptoms were those of an osteo-arthritis. In the two cases in this series in which the spine was affected as well as the heels, gonococci were found in the growths removed from the heels.

Atheromatous Cyst of the Scrotum.—This case was reported by Dr. Churchman. The patient was a colored man aged forty-one years. The tumor had been present since early boyhood. It lay in the raphe of the scrotum, was freely movable under the skin and was a little larger than the testicles, though resembling them in shape, it had no definite pedicle. There were no symptoms accompanying it. The tumor was removed under cocaine, and proved on section to be an epithelial-lined cyst containing cholesterin crystals and epithelial cells, but no true dermoid elements.

Bladder Calculus in an Infant.—The patient, reported by Dr. Churchman, was a male nineteen months of age. He was healthy and sturdy, but had had for four months hematuria with straining and pain at stool and on micturition. By means of a small sound search a stone was located in the bladder. The patient had not yet been subjected to operation. No case of stone in the bladder in so young a patient had occurred in the 80 cases seen at the Johns Hopkins Hospital.

Congenital Urethral Stricture.—This patient was a boy aged thirteen years who had come to the clinic complaining of hematuria and pain over the ureter, with nausea and vomiting. Previous genito-urinary trouble was denied. An X-ray picture and examina-

tion of the urine for tubercle bacilli were negative. Examination of the urethra showed a pin-point meatus and two narrowings—one in the bulbo-membranous portion and one just back of the meatus. Under gradual dilation all symptoms disappeared and the urine became absolutely clear.

Traumatic Atrophy of the Testicle.—The patient was aged nineteen years and had been normal in every way until eleven months before admission, when he had received a kick upon the scrotum followed by redness and swelling of the left testicle. The swelling soon went down and atrophy supervened, the testicle gradually shrinking until it reached the size of a hazelnut. It, with an accompanying varicocele, was removed under cocaine. Section of the testicle showed a good many normal tubules and a few atrophied ones. There was no connective-tissue increase. The vas and epididymis were patent and no good pathological explanation was found for the atrophy. The specimen also contained a curious gland-like structure which looked on cross-section much like the uterus. It was connected with the tunica albuginea by a tube lined by columnar ciliated epithelium which looked a good deal like the Fallopian tube. The structures were thought to be rests of the Müllerian duct.

NEW YORK ACADEMY OF MEDICINE.

Section on Genito-Urinary Diseases.

Stated Meeting, held May 17, 1905.

The President, Ramon Guiteras, M.D., in the Chair.

Multiple Vesical Calculi.—Dr. John Van der Poel reported a case illustrating the advisability of preliminary X-ray plates in cases of enlarged prostate, combined with visical calculi, when the perineal route for prostatectomy has been decided upon. In the case in question, two stones were detected with the searcher, whereas upon cystoscopic examination with the No. 1 Nitze cystoscope, but one was seen, the second evidently lying in the bas-fond of the bladder. After the prostate had been removed, the two stones were easily taken out through the perineal wound and dilated posterior, urethra, and the bladder explored with the finger as thoroughly as possible. The perineal wound healed up rapidly —(the inverted incision having been used)—and by the seventh day, all urine was passed per urethram, the patient having been up from the fourth day. A persistent cystitis, with pain at the glans penis and the anus, led to a further examination with the stone searcher, when another calculus was easily detected. As the patient had so recently been subjected to a rather thorough and severe perineal operation, litholapaxy was decided upon, in preference to a suprapubic operation. The crushing was done without anesthetic, with the assistance of Dr. Gardner. No pain was complained of except during the process of aspiration, when the parts in the region of the internal sphincter and from where the prostate had been removed, were sensitive, though not exquisitely so. After drainage for two days by a fixed urethral catheter, the patient was up on the third day and out of the hospital on the fourth.

A Case of Exstrophy of the Bladder.—Presented by the Chairman, Dr. Ramon Guiteras: The patient, a young man, was shown to illustrate the result of an operation for complete exstrophy of the bladder, the entire bladder having lain exposed on the abdominal wall. The Wood operation was done by Dr. Guiteras, taking a flap from above the bladder and one on either side from the groins, and bringing them together. The edges of the gaping urethra were then brought together, and healed without any trouble. A few skin grafts were applied about the edges of the wound. Two small sinuses remained, which healed in the course of a few days without treatment. The entire operation was done at one sitting. The result was very satisfactory, considering the nature and extent of the defect. The patient was now able to hold seven ounces of urine in his bladder, and was fairly comfortable, whereas before the operation there was a constant flow of urine.

Dr. Eugene Fuller said he had never before seen such a good result in so aggravated a case.

A New Genito-urinary Basin.—Dr. A. L. Wolbarst showed a basin especially designed to fit between the thighs. It was made with an anterior notch in which the penis rests. On account of its shape, it is much more convenient than the ordinary pus basin for the purpose of bladder irrigation or other manipulations about the bladder and scrotum.

Foreign Body Removed from the Bladder.—Dr. Van der Poel showed this specimen. It was a French nail, two and three-quarter inches long with a very sharp point, which he had removed from the bladder of a man forty-eight years old, who had introduced it into his urethra for the purpose, as he said, of relieving an itching of the parts. While he was engaged in this act, the door suddenly opened, and the nail slipped from his grasp. He consulted Dr. George E. Close, who, detected the nail in the urethra, and the patient was then referred to Dr. Van der Poel, who found that the nail had passed into the bladder. It was readily detected with the stone searcher, with the cystoscope and found to lie almost perpendicularly, with the point downward in the postprostatic pouch—(the nail having been introduced head first) —and the head in the vault of the bladder. On account of its size and its peculiar position, it was deemed advisable to remove it through a suprapubic incision, which was done, and the man made an uneventful recovery. The case is interesting first, from the fact that foreign bodies of over two, or two and one-half inches in length, always, or most always, assume a transverse or transverse-oblique position in the bladder, whereas this was almost parallel with the long axis of the body, and secondly from the fact that although it was very sharp, it gave rise to no pain, strangury, or hematuria.

Vesical Calculus Removed by Operative Cystoscope.—Specimen was shown by Dr. Van der Poel. The patient was a man sixty-four years old who had given symptoms of stone in the bladder. With the cystoscope, three calculi, about the size of the tip of the little finger, were detected in the postprostatic pouch. At first the patient refused operative interference, but after the use of diluents had proved unsuccessful, he again applied for relief. The first stone, weighing nineteen grains, was removed with comparative ease with Nitze's operative cystoscope, with the lithotrite attachment. The second stone, weighing thirty-one grains, proved more troublesome. After the cystoscope had been introduced into the bladder the lithotrite attachment opened and the stone seized, the lamp failed to approximate with the rest of the instrument, which could not be withdrawn farther than the bulb. A perineal section was rapidly done under cocaine, the lithotrite closed and withdrawn, and the calculus re-

moved. The patient still had the third stone in his bladder, which Dr. Van der Poel said he hoped to remove in the near future, as it was about of the same size as the others.

Three attempts were made to get a skiagraph of the vesical calculi in this case, but they all proved unsuccessful, owing probably to the thickness of the antero-posterior diameter of the body of the patient, for although not a stout man, he was very large from the pubis to the sacrum. The stones were not composed of pure uric acid, which on account of their composition would fail to show a radiographic shadow, but were apparently made up of phosphates, with carbonate of lime and urates, as no trouble had been found in radiographing them through the shoulder of the patient after their removal from the bladder, their formation being shown on the plate below, which was taken without any intervening substance and the calculi not having been cut.

Dr. Fuller recalled a case of prostatectomy, with stone, that came under his observation some time ago. The patient was about five feet, six inches tall, and weighed fully two hundred and forty pounds. On account of his size he had been unable to walk about for a long time, and his tissues had become so soft that it was difficult to distinguish between fat and muscle. He had an enlarged prostate, and twelve faceted stones in the postprostatic cul-de-sac. The bladder was extremely sacculent, and on account of its size it was considered wise to do the prostatectomy by the perineal route. After enucleating the prostate, five of the stones were removed with considerable difficulty. Ten days later, when the tube was removed, it was found that the enlarged bladder had contracted to such an extent that the remaining calculi could be scooped out with the greatest ease.

Different Conditions in Movable Kidney and Their Treatment.— Dr. Robert T. Morris said he would present the subject very briefly. In regard to nomenclature, he believed that the term "loose kidney" was better than "movable kidney," and it was both brief and expressive. In dealing with this condition, there were two chief classifications: First—The loose kidney occurring alone as a diagnostic entity; not associated with other loose viscera. Second—The loose kidney associated with other loose viscera. Going back to the first class, in which the loose kidney occurred alone, we could again make a division of the cases into those in which the condition of the kidney caused symptoms, and those in which it did not cause symptoms. In a certain proportion of cases of loose kidney, the patients complained very little of any disturbance. Dr. Morris said he had seen kidneys so loose that they could be carried pretty well down to the pelvic brim, and yet the disturbance was not great in degree, while in other cases a range of a few centimetres would provoke most distressing symptoms, even precipitating a psychosis. The causes for the symptoms depended upon three chief factors. When there is an angulation of the ureter it produces obstruction, at times transitory in character, spasm of the muscularis of the ureter, and symptoms similar to those attending the passage of a renal calculus. The second group, and by far the largest, was that in which there was interference with a portion of the large sympathetic nerve branches, which were so abundantly distributed in the kidney, and readily observed in operations on that organ. The dragging on these sympathetic branches, so near to the great solar plexus, provoked the largest number of symptoms. In the third class of cases, we had direct pressure effects; direct mechanical effects. The loose kidney might lie upon the pylorus. When it rested against the pylorus or the duodenum, it might cause obstruction and eventually lead to dilatation of the stomach or give rise to a chronic gastritis. Or pressure in that region might occasion acute attacks of gastrio-duodenitis. Then again, the loose kidney might rest on the superior mesenteric vein. Edebohls has called attention to that possibility, and his observation was apparently borne out in cases of congestion of the cecum and appendix. This congestion might persist for months or years, and some of those patients eventually came to the surgeon for relief. In one patient who came under the speaker's observation in whom the "sweet-oil treatment" had given temporary relief, the symptoms were permanently relieved by anchoring the loose kidney.

Dr. Morris said that in the class of cases in which the loose kidney was associated with other loose organs, we had really to deal with a diastasis of the rectus muscles of the abdomen. These muscles could be separated for a distance of several centimeters with the finger through the skin, and they often remained separated year after year, so that the lax peritoneal support of the viscera, associated with the diastasis, allowed the chain of events which were so frequently observed.

Treatment.—In cases in which there was angulation of the ureter as the chief symptom, any one of the common abdominal supports would often afford relief. In those cases in which there was direct pressure upon the pylorus or duodenum, or upon the superior mesenteric vein, one of the common abdominal supports would often relieve the symptoms, and the patients would frequently gain so rapidly in weight and feel so much better that they would refuse to consider operative interference. In the class of cases in which the loose kidney dragged upon the branches of the sympathetic nerve, there were usually many reflex symptoms, and these hypersensitive patients, as a rule, were not well relieved by any form of abdominal support, and for that reason the speaker said he advised operation pretty promptly. He advised operation in cases that were not easily

relieved by support, which was in the majority of this type of cases.

Choice of Operation.—Dr. Morris said he formerly employed Senn's method, packing the kidney with iodoform gauze until granulations had appeared; then removing the gauze and trusting to fibrous adhesions. This method worked very well, but left an open wound for a longer period than he liked, and required more time for healing. He then tried the Guyon method, simply suturing without splitting the capsule of the kidney. After that, for three or four years, he tried a method of his own, turning up a trap-door section of the capsule of the kidney and drawing it through the psoas muscle. Later he took up Edebohl's method and employed it in a series of cases with excellent results, and he regarded it as the best operation that had thus far been devised up to the time of the publication of Dr. A. H. Goelet's paper, about two years ago, in which he advised suspension of the kidney by means of a suture introduced in such a way that traction upon it carried the kidney up behind the ribs. This procedure was very simple, so that the operation could often be completed in fifteen minutes or even less and it answered every purpose of retaining the kidney in a normal position. In that class of cases in which there was a wide diastasis of the recti muscles, and in which the loose kidney was associated with other loose abdominal organs, Dr. Morris considered it important to repair the diastasis. To do this effectually, he excised the entire strip of bare fibrous tissue between the recti muscles, and then united the muscles, cutting through peritoneum and all. Sometimes this excised strip was five, six or seven inches long, and two or three inches wide. He then shortened the falciform ligament of the liver, and lessened the tension upon the gastrocolic ligament. After that had been done, the kidney itself could be treated in the manner described by Dr. Goelet.

The Different Conditions in Calculous Kidney and Their Treatment.—Dr. Eugene Fuller stated that in dealing with this condition it was necessary to determine whether the stone was encysted or non-encysted. The latter class gave rise to the most trouble, as the former never caused obstructive symptoms. In a case of encysted calculus without any infection, the patient might go on for years without knowing that he had a stone, but a loose stone in the kidney was very apt to give rise to trouble in a comparatively short time. When obstruction and infection had once occurred, disorganization of the kidney was likely to follow, with the formation of a renal or perirenal abscess.

Symptoms.—In a case of calculus of the kidney, all the classical symptoms of that condition might be present, or they might be entirely absent. There might be localized pain in the loin, or radiating to the neck of the bladder or the thigh and penis. The pain associated with this condition was often mistaken for an ordinary bowel colic. There might be frequency of urination, or retentive symptoms, or absolute anuria. Hematuria was not an infrequent symptom of the condition, especially in dealing with uric acid calculi. Among the more recent aids in the diagnosis of calculous conditions of the kidney, Dr. Fuller mentioned ureteral catheterization, the use of wax-tipped ureteral bougies, and skiagraphy.

Treatment.—The choice of treatment lay between the expectant or therapeutic, and the operative. Certain patients of advanced age, with marked evidences of arteriosclerosis, or other contra-indications to operation, might be treated expectantly. In cases of renal calculus followed by destructive pyelitis, the kidney might be found in such a disorganized condition that its removal was indicated, but entire removal should only be done when it was absolutely imperative, because in such cases the stone diathesis still existed, and the opposite kidney was likely to become similarly involved sooner or later. Nephrotomy or partial nephrectomy in connection with the removal of stones were recommended.

The Different Conditions in Tuberculous Kidney and Their Treatment.—By Dr. Charles Langdon Gibson. (To appear in a future issue of the Medical News.) Dr. J. A. Nydegger, of the Marine Hospital, Stapleton, Staten Island, referred to a case of tuberculosis of the kidney under his care at the present time. The patient was brought to the hospital last December, having come from the South, where he had been treated for cystitis. Tubercle bacilli were found in the urine, and subsequently the patient developed chills, followed by high temperature. A cystoscopic examination of the bladder revealed many ulcerations, which were treated locally with a solution of silver nitrate and an emulsion of iodoform. Later, a perineal section was done and the bladder drained, but as the patient failed to improve, it was decided to remove the affected left kidney. Upon cutting down on that side, the upper portion of the kidney was found to be occupied by a large abcess, while the lower section of the organ, as far as could be ascertained, had been entirely destroyed.

Dr. Van der Poel said he had been particularly interested in what Dr. Gibson said in regard to the possibility of doing a resection of the kidney in tuberculosis of that organ. If we could successfully resect a certain amount of diseased kidney tissue, it would certainly be a great advance in renal surgery. In the diagnosis of tuberculous kidney, there were some cases that gave rise to but few symptoms where a diagnosis was difficult. In cases in which there was marked acidity of the urine, with polyuria and pus, the diagnosis of tuberculosis of the kidney was fairly certain, even without the presence of tubercle in the urine, which were only found in about 50 per cent. of the cases, probably because but a single examination from a small specimen had been made. The speaker said he recently saw a patient in whom the symptoms were characteristic of stone, though in a moderate degree. There had been attacks of a dull pain over the kidney, which had persisted for a number of weeks at a time; there had been one or two attacks of hematuria, and pus had been intermittently continuous in the urine. The pain, however, was referred to the left loin, and all the symptoms were attributed to the corresponding kidney. Purely by accident, the right ureter was catheterized before the left, and pus was withdrawn. The patient was so sensitive that the opposite ureter was not catherterized. A radiograph was then taken, which showed a stone in the right kidney. The case was still under observation, and was a good illustration of the problems that were occasionally met with in dealing with lesions of the kidney. When the tubercle bacilli were found, the question becomes comparatively simple, and when we have to deal with occasional attacks of hematuria and pain, with pus in the urine, and with a negative skiagraph, it was sometimes impossible to assert whether we were dealing with tuberculosis or a stone in the kidney.

Dr. Robert T. Morris said the idea of removing the affected part of a tuberculous kidney and then depending on constitutional treatment was a new one to him. In selected cases, where the parenchyma only was involved, he thought the method could be resorted to advantageously. There could be no doubt of the fact that in certain cases of tuberculosis of the kidney the constitutional treatment was of the utmost importance.

Dr. Charles H. Chetwood said great advances had been made in kidney surgery during the past ten years, with a corresponding diminution in the operative mortality. The most important advance in connection with this class of diseases was the earlier and more accurate diagnosis. Cystoscopy, cyoscopy and the X-rays were valuable adjuncts to the older methods of diagnosis, and we could now determine not only whether a lesion of the kidney actually existed, but also ascertain the condition of the opposite kidney. By means of the X-rays, the presence or absence of renal calculi could be determined in cases where the diagnosis could not possibly have been established by other methods, and it was even claimed that tuberculosis of the kidney could be recognized by means of the rays. In dealing with a calculous kidney, the occurrence of infection would often be the determining factor in bringing the case to the attention of the surgeon, even when multiple stones were present. In operating for the relief of pyelonephrosis, with or without the presence of stone, it was often difficult to decide whether to remove the kidney or not. The general conservative opinion was to save as much of the kidney as possible. Even when nothing was left, apparently, but a mere fibrous sac, the organ might still possess some functionating power. The same conservatism was not advisable in dealing with a tuberculous kidney, according to the consensus of opinion among writers on that subject. The operation of resection of the kidney had thus far shown a high mortality, and where the integrity of the opposite kidney could be established, a complete nephrectomy would probably be preferable.

Dr. Chetwood said he did not believe we had to deal with primary tuberculosis of the bladder. Given a tuberculosis of the bladder, we might expect to find tuberculous lesions elsewhere, usually in the kidney.

Gonorrheal Infection of the Kidney.—Dr. Follen Cabot reported the case of a young man who had a stone in the bladder, which was finally removed. The patient enjoyed good health for about a year, when pus was found in his urine, and he was treated for a time for cystitis. He was subsequently examined with the cystoscope, and pus was observed coming from the kidney. A catheter was introduced into the pelvis of that kidney, and the pus that was withdrawn was found to contain many gonococci. The man had had a previous attack of gonorrhea, for which he claimed that he had received no local treatment whatever. The urine continued to show pus, and a subsequent nephrotomy revealed six calculi in the kidney, none of them loose. The kidney also contained about a pint of pus, from which unfortunately no cultures were made. A few days after the operation the attempt was made, but with negative results, perhaps owing to the fact of the presence of many kinds of micro-organisms. The pus drawn from the kidney pelvis by uretereal catheter showed typical gonococci by Gram's decolorization stain but no cultures were made at that time.

Dr. A. H. Goelet differed with Dr. Morris on the subject of nomenclature. He did not favor either the term movable kidney or loose kidney, because the normal kidney was movable. He employed instead the term prolapsed kidney, which described the condition more accurately than any other that had been suggested.

In speaking of the conditions caused by prolapsed kidney, Dr. Morris stated that it produced a congestion of the appendix and the adjacent bowel, but he did not call attention to the fact that it interfered with the function and nutrition of the kidney itself, producing a condition which might be only an irritation of the kidney at first, but which in many instances went on to a mild form of pyelonephritis. The occurrence of this condition he thought depended a good deal upon the actual position of the kidney, and the habits of dress of the patient. He had shown that pyelonephritis exists in the majority of these cases as demonstrated by microscopical examination of the urine. Another pathological condition produced by prolapse of the kidney was a chronic congestion of the pelvic organs in the female, owing to interference with the return circulation from the pelvis. Because women wore their clothing suspended from the waist distention of the bowels must take place below the waist line, and in this way the kidney which is attached to the colon and driven back against the ovarian vein, pinching it against the spine, and thus producing pelvic congestion. The question of the attachment of the kidney to the colon had not received sufficient attention, and was an important factor in these cases.

Operation Upon a Prolapsed Kidney.—In operating for prolapsed kidney, Dr. Goelet said he had returned to the method of packing gauze around the lower pole of the kidney, in addition to the sutures, the packing being inserted for the purpose of preventing reattachment of the kidney to the colon and to lessen the strain on the sustaining sutures. He emphasied the importance of completely detaching the kidney from the colon as one of the essentials of the technic of the operation. Dr. Goelet expressed his appreciation of Dr. Morris' commendation of his method of suturing the kidney, which unquestionably restores the organ to its normal position, and he believed restoration of the kidney to its normal position was essential in successfully overcoming the symptoms and conditions produced by displacement.

Dr. Guiteras said that in some cases where stone was present in one kidney with pain on the opposite side, the pain was not renorenal reflex, but an evidence of acute inflammation of the kidney on the painful side, while on the side, where no pain was complained of, there had been an inflammation that had left the kidney in a much worse condition than its fellow, in which pain was present. At the last meeting of the Section, Dr. Guiteras said, he had shown two kidneys from the same patient, one removed at operation, the other at autopsy. In that case the patient had complained only of pain on the right side, never on the left. Upon catheterization of the left ureter, there was an escape of two ounces of pus, while there was a very slight amount of pus from the right kidney. The left kidney was removed and was found to be in a condition of pyonephrosis—a pus sac with thin walls and the kidney tissue practically destroyed. The patient died two days after the operation, and at the autopsy the right kidney was found to be in a condition of acute suppurative

pyelonephritis. Dr. Guiteras said that the case reported by Dr. Cabot, in which gonococci were found in the kidney, was an extremely rare one. There were probably not over a dozen cases of gonorrheal infection of the kidney reported in literature.

Dr. Van der Poel remarked that the experiments with artificial tuberculosis in rabbits detailed by Dr. Morris were very interesting and instructive, as regards the natural repair of tissues affected with tuberculosis, although it was impossible to say how close the analogy was between human tuberculosis and the disease in rabbits.

General Enteroptosis.—Dr. A. Ernest Gallant makes use of the term "ectopic" as embracing the various forms of kidneys which are not found to occupy their normal relation in the loins and gives preference to the term "prolapsed" kidney to that variety which has descended behind the colon, and which is almost always associated with prolapse of the other abdominal viscera. The latter condition is frequently overlooked by those surgeons who deem every prolapsed kidney a subject for fixation, forgetting that the kidney mobility is only a part of the general enteroptosis, involving, not infrequently the stomach, colon, liver, spleen, etc. Occasionally, following inquiry, the kidney will be found prolapsed—traumatic movable kidney, but, if the surgeons who fail to examine the stomach, would send their patients to a stomach specialist and ask for his report on the position, size, shape and working capacity of that organ, many unnecessary operations on prolapsed kidneys would be avoided. Prolapsed kidney is, unfortunately, easy of palpation, so easily reached that it offers a tempting field for surgical reward. In dealing with a prolapsed but replacable kidney, Dr. Gallant said that he seldom finds it necessary to operate. A replacable kidney as well as other intra-abdominal viscera, with the exception of a floating spleen, can be kept in place by means of a properly fitted corset, such as he describes on a previous occasion. If, as has been conclusively shown, that ordinary palpation of the kidney does produce albumin in the urine, what must result when the kidney has been fixed and subjected to the constant irritation and pressure induced by the corsets and clothing usually worn? Dr. Gallant said that he could not agree with Dr. Morris' statement that a diastasis of the recti muscles is present in the majority of these patients, unless he would limit it to women who have borne children or had large abdominal tumors, and others who are very stout. In Dr. Gallant's experience in sixty per cent. of women with prolapsed kidney there was no history of childbearing or tumors, and the abdominal muscles were very tense. In cases where actual diastasis existed, instead of taking out a strip of fascia from between the recti, as suggested by Dr. Morris, Dr. Gallant prefers to reinforce and reduce the abdominal wall by overlapping the fascial layers, as suggested by Dr. J. A. Blake for the cure of ventral hernia.

Dr. Morris, in closing, said that the term loose kidney was briefer than prolapsed kidney, and more euphonious than ectopic kidney. While many patients were greatly relieved by a properly fitted corset, still, it did not relieve all. Furthermore, the fashions in corsets changed, and the women sometimes tired of the same style, and asked for operation and permanent relief.

Dr. Fuller, in closing, said he did not feel very hopeful regarding the outlook of partial nephrectomy in case of tuberculosis of the kidney. The disease was so diffuse in its nature that hygienic and climatic influences offered greater chances of a permanent cure than an operation of the kind described. Of course, in cases where there was an abcess of the kidney, operative interference was imperative.

BOOK REVIEWS.

Diseases of the Heart, a Clinical Text-book for the use of Students and Practitioners of Medicine. By Edmund Henry Colbeck, B.A., M.D., B.C.(Cantab); F.R.C.P.(London); D.P.H.(Cantab), Physician to Out-Patients at the City of London Hospital for Diseases of the Chest; Physician to the Metropolitan Dispensary, E.C.; Late House Physician at St. Mary's Hospital, etc., etc. With 43 illustrations. Second Edition, revised and enlarged. W. T. Keener & Co., Chicago.

This is an excellent monograph on the diseases of the heart. It is especially full in the matter of diagnosis, but no one who realises the difficulties of cardiac therapeutics will complain of lack of treatment in it. Over sixty pages of its 340 are devoted to diseases of the myocardium. This is as it should be, for as has been well said, it is not so much the valvular lesions that are serious in the heart, since these may be compensated for by the heart muscle, but when the muscle begins to fail, then the end is not far off. This is the second edition, and in these days, when monographs in medicine are no more popular than collections of short stories, in general literature it is interesting to note that it is called for only three years after the first. It contains an account of the mechanical strain of the heart and of the Stokes-Adams syndrome, which were not in the work as originally published. We can cordially recommend this little volume to those who are especially interested in the diseases of the heart.

The Ophthalmic Year-Book. A Digest of the Literature of Ophthalmology, with Index of Publications for the Year 1903. By Edward Jackson, A.M., M.D., Emeritus Professor of Diseases of the Eye in the Philadelphia Polyclinic; President of the American Academy of Ophthalmology and Oto-Laryngology; Ophthalmologist to the Denver County Hospital, St. Anthony's Hospital, and Mercy Hospital, Denver. The Herrick Book and Stationery Company, Denver, Colo.

From the mass of ophthalmological literature published, this author has weeded out that which appeals to him as of relative importance and has critically reproduced it in sufficient detail to make it available for practical application at such places as it is possible to convey more clearly the visual character of the topic under discussion. The text is well illustrated, and where new operative methods are described the different stages are diagrammatically shown.

A second feature of the book is a carefully compiled index of all the original contributions dealing with this subject which have appeared during the foregoing year.

BOOKS RECEIVED.

A Treatise on Plague. By W. J. Simpson. 8vo, 466 pages. The University Press, Cambridge.

Enlargement of the Prostate. By Dr. J. B. Deaver. 8vo, 266 pages. Illustrated. P. Blakiston's Son & Co., Philadelphia.

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ORIGINAL ARTICLES.

APPENDICITIS IN CHILDREN: A STUDY OF SEVENTY CASES OCCURRING BETWEEN THE AGES OF TWO AND FIFTEEN YEARS.*

BY CHARLES N. DOWD, M.D.,

OF NEW YORK;

ATTENDING SURGEON TO ST. MARY'S FREE HOSPITAL FOR CHILDREN AND TO THE GENERAL MEMORIAL HOSPITAL.

THE peculiarities of appendicitis in children are sufficient to call for special consideration. The diagnosis is sometimes particularly difficult, the course of the disease often differs from that in adults. The prognosis in certain forms of inflammation is distinctly better than in adults, whereas in others the overwhelming virulence is even more startling. Many articles have been written on the subject, some reviewing the general subject as it stood at the time the article was written, others calling attention to the particular elements which had most impressed their authors. McCosh[1] calls particular attention to the insidious and often rapid course of the disease, and he and de la Carriere[2] have emphasized persistent vomiting as a symptom of much diagnostic importance; Richardson,[3] Griffiths[4] and Morse[5] called attention to the remarkable way in which beginning pneumonia gives pain and rigidity in the appendicular region, and hence leads to great difficulty in diagnosis. Erdmann[6] has found that the movements of the hand and arm which the child makes to protect the tender abdomen are characteristic. Karewski[7] and Selter[8] emphasize the frequency of previous attacks of gastro-intestinal disturbance; also the importance of rectal examination, since the child's pelvis is small and the inflammation usually extends along the right pelvic wall. Karewski also refers to the frequent desire to urinate and pain on doing so, and Selter to the frequency of diffuse peritonitis which is relatively more common in children than in adults. Mayo, Bloodgood, Albaran, Rally and Metchnikoff record instances of intestinal worms causing either the disease or symptoms which suggest it. All of these writers, and many others in addition, indicate that there are certain peculiarities of the disease as seen in children.

Since not many studies or groups of cases have been published, the writer has, with the help of Dr. Charles E. Farr, ex-House Surgeon of St. Mary's Hospital for Children, studied the records of 70 children, two to fifteen years of age, who have been operated upon for appendicitis either in that hospital or in private practice since 1895, comparing them with a considerably larger number of adult patients whom he has operated upon during that same period. They were mostly acute cases sent into the hospital during the course of the disease and operated upon without delay.

A clinical division of the cases which has often been used in considering the subject, is the following: (1) *Early cases,* whose operations came within the first two days; (2) *Later, active cases,* whose operations came during the progressive or retrogressive stage of the disease, but later than the second day; (3) *Interval cases,* whose operations came after the inflammation has subsided.

In this series there were eleven early cases, forty later active cases and nineteen interval cases.

Group I. Early Cases.—Forty-eight hours has frequently been set as an arbitrary time dividing the period of intra-appendicular inflammation from that of abscess formation or spreading peritonitis. Even in adults, this division is subject to many exceptions. In children there are even more. The following history illustrates the characteristics of the early causes as they have come to the hospital. The symptoms were pain, vomiting, prostration, fever and localized muscular rigidity of a very definite character. Their duration was less than twenty-four hours. Operation revealed a perforated appendix and beginning peritonitis.

Annie A., aged nine years, was in her ordinary health until the night before admission to the hospital, when she began to have much pain. The maximum intensity was a little to the right of the umbilicus, but she felt it generally through the abdomen. She vomited several times. Felt much depressed through the day and was brought to the hospital at the end of the afternoon. At that time the pain was much less, but there was tenderness on pressure over the lower right part of the abdomen, and muscular rigidity, much more marked on the right than on the left side. This was so great and so distinctly defined that it seemed almost as though there must be a mass below it, the lower part of the rectus being so definitely hardened as to give the impression that the mass extended only to about the level of the umbilicus. The facies indicated severe illness. The abdomen showed no distention and no tympanites. Temperature 101.4° F., pulse 134, respiration 26. The pulse was weak and thready and not of good quality. Leucocyte count, 3,200; 91 per cent. polynuclear. Operation done without delay, *i.e.*, twenty-four hours after the onset of symptoms. On incising the peritoneum there was a gush of purulent

* Read before the Hospital Graduates' Club, April 27, 1905.

serum; thin, but whitish. The appendix was found to contain a large concretion. The mucous membrane of the terminal inch and a half was gangrenous; it was perforated in two spots and intensely inflamed. The intestines in the vicinity were covered with fibrin, but so much of intestine as was seen at a distance from the appendix was only moderately congested, although bathed in cloudy serum. The appendix was removed. Stump ligated and buried. One gauze drain inserted. She recovered promptly without incident. Drainage entirely removed on seventh day; wound completely healed on sixteenth day.

This case represents fairly well the eleven cases whose operations came within the first two days, but was more acute and rapid in its progress than the average. These eleven cases may be summarized as follows: Three had had previous attacks. In all of them pain had come at the beginning of the attack; in four the first pain was described as "abdominal" or in the umbilical region; in all it finally became most marked on the lower right side of the abdomen; all vomited; all had distinct localized muscular rigidity. In six of the cases the appendix had ruptured. In four there was beginning peritonitis away from the appendix. All recovered promptly.

In this group of cases the rapidity of the progress of the inflammation is the notable peculiarity. It would be difficult to find a group which in other respects conforms more completely to the classical symptoms of the disease.

The good results are what would be expected in patients whose operations come within the first forty-eight hours of the disease, and forcibly illustrate the importance of prompt diagnosis and early operation.

Group II. Later Active Cases.—The main interest hinges about the group whose operations came between the second and twenty-second day. They stand in marked contrast to those whose operations came on the first or second days. The inflammation had extended further, sometimes to the formation of diffuse or general peritonitis, sometimes to the formation of single or multiple abscesses.

There is a mortality rate in these cases; among 32 children whose operations came on the third to the seventh day there were four deaths, and among eight whose operations came in the second and third weeks there were three deaths. This makes the mortality rate 10 per cent. for the entire series, a rate which stands about midway in the reports of appendicitis which have been made; not so good as some, not so bad as some; probably as good as can be expected, in the present state of surgery, in children whose inflammations have reached the advanced stage which this series shows. Many of the patients were only sent to the hospital when it was manifest that they would soon die if left at home; these patients were regularly operated upon with the exception of one in a moribund stage, who died six hours after admission. This method has been followed in these desperate cases because it is particularly in children that recovery has followed operation in advanced peritonitis, and it seemed unfair to withhold the slight chance of recovery which it offered. The results have justified the method, as some very desperate cases have recovered. The mortalities occurred almost entirely among these far-advanced cases. In four of the fatal cases there was general peritonitis at the time of operation, with the dissemination of pus and fibrin throughout the abdominal cavity. Two patients had multiple abscesses in different parts of the abdominal cavity. The seventh presented peculiarities which are worthy of note. She had suffered from a rather mild attack of appendicitis, but as the symptoms were diminishing when she came to the hospital operation was delayed until they had subsided. After ten days no symptoms of inflammation could be detected and the operation was done. The tip of the appendix, however, was found to lie in a very small abscess cavity at the outer side of the cecum. This was four years ago when much was being written and said about small drains or even no drains in cases of this kind, and accordingly after cleaning the cavity with dry gauze a single small gauze drain wrapped in rubber tissue was inserted. The child died seven days later of general peritonitis, which had progressed, with daily stools and without early tympanitis in the insidious way which is so much dreaded in children. The small cigarette drain was a distinct error, I believe; a good-sized gauze drain not wrapped in rubber tissue would have been much better.

In this group there were 10 patients who had diffuse or general peritonitis. Where the inflammation at a distance from the appendix has been slight the peritoneum has been trusted to care for it and only the local abscess has been drained. When the general inflammation has been severe, thorough irrigation with saline solution has been used.

It is not the purpose of this paper, however, to discuss the method of dealing with general peritonitis. Each surgeon is likely to use with children the method which he has adopted for adults. The aim of the paper is to call attention to the peculiarities of the disease as seen in children.

One of these peculiarities has a very strong bearing on the treatment of this late group of cases. It is in this group that the cases come for which some surgeons advocate delay, others immediate operation. Children, however, are peculiarly liable to the insidious, rapidly spreading form of peritonitis which does not give the ordinary symptoms. Hence surgeons generally advocate immediate operation in them no matter what they advise in adults. The subject is important, since delay is distinctly more dangerous for them than for adults. McCosh has particularly advocated this measure, and Ochsner[9] calls

attention to the difficulty in limiting inflammation which young children and greatly emaciated adults show, "because of the absence of a sufficiently large omentum to surround the diseased appendix." He, too, advocates early operation in these cases.

It is manifest that operation without delay is important for these cases. The technic need not materially differ from that of adults.

Group III. Interval Cases.—In this group there was no mortality. Eight of the patients had suffered from several attacks; two of them from two attacks each, nine from one attack each. In one instance an appendix which contained a concretion was found in a urachal sinus, and in one instance a congested appendix was found in a hernial sac. Nearly all the appendices showed adhesions, constrictions or thickening at the time of operation. The number of cases in this group was relatively small, 27 per cent. of the entire series, whereas in Murphy's[10] 2,000 cases they constituted 66 per cent. of the series, and in 1,000 cases which Ochsner reported in 1904 they were 54 per cent. of the series. The small percentage of interval cases manifestly makes the general mortality rate seem higher than it otherwise would.

General Consideration of Symptoms.—In order to study the peculiarities of the disease as shown in this group of children, we may consider the symptoms in turn, not counting the interval group, many of whom were not seen by the writer in primary attacks. *Pain* was a constant symptom, and it was almost always in the upper or middle part of the abdomen, at first and localized near the right iliac region later. In one instance the tip of the appendix lay slightly left of the median line, and the pain was most marked on the left side. In many instances where the tip of the appendix lay high the pain was correspondingly high. The expression of pain was naturally not so definite as in adults, and several times the symptom to which Dr. Erdman calls attention, of holding up the hand in protection of the tender abdomen, was very noticeable and was a valuable guide.

Muscular Rigidity and Tumefaction.—The physical examination of the abdomen in this series of cases was much more satisfactory than one would expect from studying the other records of this disease in children, possibly because so many of the cases were seen late. The abdominal muscles of children are peculiarly sensitive to inflammations below them. The writer has seen as characteristic muscular rigidity in an infant of six and a half pounds with an abdominal lesion as he has ever seen in adults. With a localized appendicitis this muscular rigidity is also localized, and a distinct difference can usually be made out between the two sides of the abdomen and between the upper and lower part of the right side. In only one instance in the entire group did this symptom fail. That was a child whose tonsils had previously been removed without anesthetic, and who was so terrorized at the sight of a strange doctor that he cried and kept both sides of the abdomen equally tense. Pressure on the thigh was followed by the same evidence of pain as pressure on the abdomen, and the right and left sides of the abdomen seemed equally tender, and the vigorous crying of the child was not what one would expect with a severe disease. He had, however, a beginning peritonitis from a ruptured appendix, and the physical examination was therefore entirely misleading. With this exception the abdominal palpation has been rather more satisfactory than in adults. In a recent article on the subject chloroform anesthseia is advised for abdominal examination. This has never seemed to the writer advisable, since the anesthetic takes away the muscular rigidity which is so important in diagnosis. Usually abdominal palpation has been more satisfactory before the anesthetic than after it. After the patient was on the table and anesthetized it would sometimes seem that there must have been a mistake in diagnosis, since so little evidence of inflammation remained. There has always, however, been much disease in or about the appendix which had occasioned the muscular rigidity.

Vomiting has been practically a constant symptom. Sometimes it has been repeated, and may be considered rather more definite a symptom in children than in adults.

Rapidity of the Disease.—Without question the spread of the inflammation is more rapid and more insidious in children than in adults. All observers seem to agree to this, for all who have observed many cases occasionally note one in which the disease pursues a most rapid, insidious course which leads to general peritonitis of a most violent type. It is this characteristic which makes surgeons fear so much the disease in these patients, and advise immediate operation in all active cases.

The *pulse* and *temperature* have usually increased gradually, the former reaching 120 or 130 per minute on the second or third day and the latter 102° or 103° F. The variations seem to be dependent on the degree of septic absorption.

Blood Examination.—Very good authorities have stated that the blood examination in children is not a valuable guide. This series does not furnish large statistics on this point, because many of the cases occurred before blood examinations were so common as they now are, and in most of them the diagnosis was clear without that aid. The following counts were made in eleven cases: 52,000, 21,000, 27,000, 13,500, 11,000, 16,000, 20,000, 21,000, 32,000, 28,000, 35,000 per c.mm. It will be noticed that with two exceptions the count was very high indeed, and this seems to be characteristic of children. The primary leucocyte reaction is usually very marked, five of these being between twenty-seven and fifty-two thousand. The later reaction, in which

leucocytosis fails, also seems to be about as marked. Two of these patients who had severe inflammation with abscess, pulse of 130 and 132, temperature 102.4° and 102° F., had only 13,500 and 11,000 respectively. Their blood examinations were made, the first on the fifteenth and the second on the seventh day of the disease. We do not know whether they had an early leucocytosis or not.

Dr. Frederic E. Sondern has kindly furnished six leucocyte counts from cases of appendicitis in children which indicate the value of the increased proportion of polynuclear cells in them as well as in adults. In three of them who had gangrenous appendices the percentage of polynuclear cells was 86 per cent., 85.8 per cent. and 95.2 per cent., the number of leucocytes per c.mm. respectively 7,700, 14,000 and 29,800. The low leucocytosis in the first of these cases was apparently not a reaction, but a condition found early in the disease due to weak body resistance. In three other patients who recovered without operation the polynuclear percentage was respectively 63.5 per cent., 62 per cent. and 63.8 per cent., the corresponding leucocyte counts 25,100, 8,800, 11,700.

Beginning pneumonia occasionally gives symptoms which closely resemble appendicitis, particularly in children. Many observers have referred to this. Griffith has collected the histories of 26 such cases. Richardson in recording five of them comments on the great difficulty in diagnosis which they sometimes give. The writer has seen four such cases, two in children and two in adults. Fortunately in each instance crepitation or harsh breathing had appeared in the chest when examination was made. The rapid respiration rate and the sudden high rise of temperature which pneumonia gives are important aids to diagnosis.

Constipation is much less frequent in children than in adults in peritonitis. The writer has seen several cases of peritonitis in children accompanied by diarrhea.

Gibney[11] has called attention to the occasional resemblance between *hip-joint disease* and appendicitis. One case of hip disease simulating appendical abscess has come to the writer's notice.

A word should be said about the ability of children to stand operative procedure in appendicitis. They are more likely to recover from general peritonitis than adults. They react from a short operation very well indeed, but prolonged operations on them are to be avoided if possible.

In considering the series as a whole, we may agree with Deaver[12] that the percentage of more severe grades of appendicitis is greater in children than in adults, and to recapitulate the peculiarities of appendicitis in children we may say that (1) the rapidity and insidiousness of the disease are much greater; (2) that the percentage of diffuse and general peritonitis is greater, probably because the omentum is less apt to inclose the inflamed appendix; (3) that the pain is almost always present, but is more difficult to interpret; (4) that the vomiting is almost always present and is frequently many times repeated; (5) that the abdominal palpation in the majority of cases is as satisfactory or more satisfactory than in adults, but in a few cases is absolutely misleading; (6) that constipation is much less likely to be present; (7) that they have a greater ability to deal with general peritonitis than adults do; (8) that during the acute progress of the disease delay is more dangerous than in adults, because of the insidious course of the disease and the greater tendency to peritonitis, and immediate operation is to be advised.

1 McCosh: Journal of American Medical Association, Sept. 24, 1904.
2 Carron de la Carriere: Quoted by Kelly, "The Vermiform Appendix and its Diseases," p. 456.
3 Richardson: Boston Medical and Surgical Journal, 1902, April 10, p. 399.
4 Griffith: Journal of American Medical Association, August 29, 1903.
5 Morse: American Gynecology and Pediatrics, 1904, Vol. XIII, p. 143.
6 Erdmann: New York Medical Journal, March 19, 1904.
7 Karewski: Deutsche medicinische Wochenschrift, 1897, p. 294.
8 Selter: Archiv f. Kinderheilkunde, 1901. Vol. XXXI, p. 59.
9 Ochsner: Journal of the American Medical Association, September 24, 1904, p. 864.
10 Murphy: American Journal of the Medical Sciences, August, 1904, p. 187.
11 Gibney: American Journal of the Medical Sciences, 1881, Vol. LXXXI, p. 119.
12 Deaver: Journal of the American Medical Association, September 24, 1904, p. 859.

OVARIAN TRANSPLANTATION.

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One of the most important fields of knowledge, in which surgery has come to the aid of physiology, is found in the study of the internal secretions of glandular organs. The practicability of grafting in the human animal glandular tissue, the secretion of which is essential for the normal functions of the body, has been demonstrated by surgery. Thus far these researches have been brought the farthest in connection with the thyroid gland and the ovary, and undoubtedly other glandular structures will be added to this list. In passing, it should be remarked that the transplantation of the skin from one person to another is the pioneer operation of this class, and although we may be ignorant of the character of the internal secretion of the skin, still it belongs properly to the glandular organs.

Before the importance of the internal secretion of the ovary was appreciated, women were deprived of these organs much more freely than is the case at the present time. The study of cases in which all ovarian tissue has been removed by surgery, and of cases in which the ovaries have become gradually destroyed by disease, has given us a pretty clear idea of the symptom complex of the cachexia incident to the withdrawal from the system of the internal secretion of the ovary, or what may be called cachexia ovaripriva. These symptoms may also be somewhat dependent upon the interference

with the ovarian nerves in this class of cases; but the following case which I am about to report points to the internal secretion of the ovary as the thing of chief importance.

As every bit of information bearing upon this subject will help in its general elucidation, the following case is reported, illustrating the cachexia ovaripriva, following the removal of both ovaries, the relief of symptoms by the use of ovarian extract, the cure of the condition by the transplantation of ovary from another woman, and the final recurrence of the disturbances at the end of a year:

The patient, a woman of twenty-seven years, had been operated upon in other hands in 1894 for double pyosalpingitis with adhesions and involvement of the uterus in inflammatory products. A hysterectomy had been done, together with removal of the tubes, one ovary and a part of the other. Much pain had developed later in connection with the remains of the ovary which had evidently become involved in adhesions, and in 1898, in the hands of still another surgeon, this remaining stump of ovary was removed. After the removal of her last ovarian tissue, marked constitutional symptoms developed, such as we have become familiar with in these cases. She came into the hands of the reporter, a striking example of this miserable picture—fainting attacks, hot flashes, gastric crises, nausea, vomiting, perversions of sensation, attacks of dizziness, obstinate constipation, etc. The whole catalogue of nerve sedatives was exhausted without relief. Ovarian extract—inspissated and pulvarized ovary—was then administered in five-grain tablets, and was found to be the first remedy that gave relief. After some experimenting it was found that five grains of dried extract of ovary taken three times daily for about two weeks during each month kept her fairly comfortable. When this was omitted for a month the symptoms recurred. She became dependent upon this product of the cow's and sheep's ovary. Ovarian transplantation was suggested to her without any promise of benefit but simply as an experiment. The operation was delayed because of the difficulty of finding a suitable case from which good ovarian tissue could be secured. Finally, my friend Dr. George R. Fowler had the case of a young unmarried woman, without history of pelvic inflammation, who had a small cystoma of the ovary, which he proposed to remove. Accordingly, on November 14, 1903, at the Methodist Hospital, with the two patients side by side on adjoining tables, I opened the abdomen of my patient, excising the old suprapubic scar, and made a slit in the remains of the right broad ligament about 3 cm. long between the bladder and the brim of the pelvis. Dr. Fowler removed the cystic ovary from his patient, and handed it directly to me. The whole mass, cyst and ovary, was the size of a medium-sized lemon. The ovary lay on one side of the cyst, and was scarcely changed in size or shape. The cyst wall was extremely thin, and represented but little more than peritoneum. The cyst was rapidly cut away from the ovary, leaving a mass of apparently healthy ovarian tissue fully the size of a normal ovary, somewhat flattened, covered on one side with peritoneum and on the other by the lining of the cyst. This was button-holed into the slit in the broad ligament, already prepared for it, peritoneal side exposed. Less than a minute of time was consumed in the transit of the ovary from one woman to the other. The broad ligament wound gaped sufficiently to leave exposed to view in the free peritoneal cavity about one-half of the area of the peritoneal surface of the transplanted ovary. A single, fine catgut suture was introduced at either end of the wound, catching the ovary to prevent rotation or displacement, and the abdomen closed.

The next menstrual crisis occurred ten days after the operation. No ovarian extract was used, but the patient was given a little bromide. This was associated with markedly less disturbance than usual. Following this the nervous disturbances and the signs of her cachexia failed to appear for nearly a year. During that time she attended to her business, and felt rewarded for trouble. Her general health was much better than formerly. The old distressing symptoms did not recur during that time. In October, 1904, the hot flashes first reappeared, and have recurred monthly since that. They are not so bad as before the operation. The attacks of fainting have not returned. She feels that since October there has been a decided change for the worse in her condition, and that the relief which the operation secured for her is passing away.

The experience in this case seems to correspond with that of Dr. Robert T. Morris, whose experiments along these lines, both in rabbits and in the human female, are so well known.[1] He has found that ovarian tissue thus transplanted survives and furnishes its secretions to the system for a certain period of time, and then undergoes degeneration. Whether the benefits from this operation can be made more permanent is a question yet to be solved.

WHAT MEANS DOES THE MODERN OBSTETRICIAN EMPLOY TO PREVENT OPHTHALMIA OF THE NEWLY BORN?[2]

BY J. CLIFTON EDGAR, M.D.,
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IT goes without saying that no measure should be neglected which can assist in preventing the occurrence of ophthalmia neonatorum. From the standpoint of the obstetrician there are two means at our command for reducing in frequency, if not practically preventing, ophthalmia neonatorum. These are: First, the ante-partum preparation of the maternal passages in cases in which

1 Medical Record, 10, 1, 1901; Am. Jour. Obstet., 6, 1903.
2 Read before the New York Academy of Medicine, Stated Meeting, May 18, 1905.

they are suspected of infection; second, the dropping into each conjunctival sac immediately after delivery of some antiseptic, as nitrate of silver, protargol or argyrol.

When the maternal passages are suspected, a preliminary course of treatment of the vagina should be instituted, beginning about two weeks before delivery. This should consist in daily or twice daily vaginal douching, first with a mild alkaline solution and then with one of bichloride of mercury in strength 1-5,000. Just before delivery something must be done to provide a substitute for the normal lubricating mucus which will have been washed away by the douching process, and a one per cent. lysol solution will be found useful for this purpose. The vagina may be washed out with it when labor begins.

The scientific gospel of Bumm and Krönig, namely, that the vaginal mucus has a bactericidal action, has been misunderstood as applying to gonococcus infection. It has no such action. To-day there is abundant evidence from many sources to prove that the fetus is in certain cases infected with the gonococcus *in utero* and hence born with gonococcus infection of the conjunctiva. Thus no prophylaxis either in the nature of ante-partum vaginal cleansing or post-partum instillation into the conjunctival sac of antiseptics can in a small percentage avail anything.

If the vagina, as many to-day believe, is usually sterile, it needs no preparation for labor to prevent ophthalmia, if the reverse is true, it does.

At the Emergency Bellevue service and at the New York Maternity, after repeated experiments with and without ante-partum antiseptic preparation of the vagina for labor, I have finally been compelled to use it in all cases without exception, in order to keep my morbidity rate from ophthalmia neonatorum at the lowest figure. Both of these services, however, are largely venereal in character.

At the Manhattan Maternity and Dispensary I am now making use of antiseptic preparation of the vagina in selected cases only, but as the service is at present only three months old we can report nothing of value. In this time we have had one case of ophthalmia neonatorum, and that in spite of Credé's post-partum treatment.

In private practice I am not accustomed to use ante-partum vaginal cleansing—this being a concession to the popular belief that there is less gonococcus infection in private practice, and yet every now and then I see gonococcus infection in spite of Credé's nitrate of silver method of prevention. I had such a case some years ago in my practice, where the husband had his acute gonorrhea in August and married in January. The baby all but lost the sight of both eyes, but finally recovered.

I have every faith in Credé's method for the prevention of ophthalmia neonatorum. In both hospital and private cases I am now accustomed to make use of this method without exception. After repeated experiments with protargol I have found nothing to compare with silver nitrate in 2 per cent. solution as a prophylactic. As soon as the child is born its face is carefully washed with boric acid solution, separate wipes being used for each eye, and the lids rubbed from the nose outward in each case. Then whether infection is suspected or not, two drops of a 2 per cent. solution of silver nitrate are dropped into each conjunctival sac. The excess is washed away in about thirty seconds with a normal saline solution.

In my experience, solutions of less than 2 per cent. do not destroy bacteria, and although solutions of 3 per cent. are harmless, they are apt to cause "silver catarrh," and are not required.

Of the many substitutes recommended it is very difficult to determine whether they are equal to or have any superiority over Credé's 2 per cent. nitrate of silver, but in my experience, after experimentation in hospital practice, protargol and argyrol are not equal in efficiency to the nitrate of silver treatment.

Ante-partum vaginal cleansing in suspected cases and Credé's nitrate of silver method after birth cannot absolutely abolish gonorrheal ophthalmia, because of the small percentage of intrauterine gonococcus infection, but they can reduce the morbidity to practically *nil*. As long as men with gonorrhea are permitted to marry and women with gonococcus infection to conceive, so long will there be danger of gonorrheal ophthalmia in the newly born child.

My faith in the prophylactic power of the nitrate of silver method is so strong that I attribute all apparent negative or ill effects of the method to the presence of ante-partum infection of the eyes, to unskilled application or to improper or inert solutions.

Dauber[1] states that antagonism to Credé's method has developed in quite recent years. First, it has been shown that the method has not been carried out properly—this, of course, being no fault of the method itself; still, as gonorrheal blindness has only been reduced less than one-half, something is wrong. Midwives should be compelled to use it. The second objection is that Credé's method tends to increase eye morbidity by causing "silver catarrh." This has led to the use of argyrol and protargol. Zweifel uses the former, and neutralizes with sodium chloride. His morbidity in over 5,000 cases has been but 0.23 per cent. Scipiades finds argyrol a certain prophylactic. From a number of other clinics come equally good reports as to protargol.

Recently in Hofmeier's clinic Credé's solution has been reduced from two per cent. to one per cent., following the custom of Runge, Fehling and Gusserow. Since this reduction the morbidity in over 5,000 cases has been but 0.33 per cent., with no silver catarrh worth mentioning. Thus while there was no dissatisfaction with Credé's method, the author concluded

[1] Münchener medizinische Wochenschrift, February 16, 1904, Hofmeier's Clinic.

to give argyrol and protargol a suitable trial. Not only were the results less favorable, but more silver catarrh was caused by Zweifel's method than by any other single procedure. Hence, at the Hofmeier clinic, Credé's one per cent. is regarded as the best prophylactic. Hofmeier also uses an ante-partum douche in his clinic, which is naturally prophylactic to ophthalmia neonatorum. Incidentally it is stated that the morbidity of this condition varied in the past with that of sepsis. When puerperal fever used to be epidemic, there was an eye morbidity of 50 per cent. at times. General asepsis, etc., brought this down to 10-12 per cent., while Credé's method has almost obliterated morbidity of the eye in individual clinics.

Wintersteiner [1] analyzes 122 cases of actual ophthalmia neonatorum. Two were undoubtedly cases of ante-partum infection. In forty others the disease did not develop until after the fifth day, and at various intervals, hence regarded as possibly of post-partum infection, although some authorities believe in delayed intra-partum causation, due to weakened virulence of germs. Credé's method is of great value within certain limits, but cannot prevail against anomalous cases, such as those of late development. To include the latter, whatever the causes, prophylaxis must be kept up through puerperium.

Wintersteiner uses Stellwag's method—potass. permanganate douching (1-1000) at short intervals, with Credé's solution twice daily. In his series of cases he obtained complete cures in every instance.

Alvarado [2] has been an industrious compiler of statistics, but does not always give the clinics. In one series of 6,397 cases a single drop of Credé was instilled and not a single infection followed. In a large series of over 15,000 cases about two per cent. developed the disease in spite of Credé's method. Other clinics go still higher (up to five per cent.). However, in clinics in which the solution used was but 1.5 per cent., the morbidity was much greater, running as high as 7.5 per cent., and even 12.2 per cent. As the author is a Spaniard, many if not all of his figures are probably of local origin. As for protargol, the only large figures he knows of are those of Rubesca, of Prague (morbidity of two cases in 1,100). These read well, but what are they in comparison with the old records of Leopold (3,000 cases of Credé's method without any morbidity)!

Does Credé's Method Cause Conjunctivitis?—Neither Leopold (in 3,000 cases) nor Rosthorn (in nearly 25,000 cases) ever witnessed this accident. Author cites Bischof's view that conjunctivitis never results if technic has been correct.

In regard to treatment, Alvarado sent out a circular of inquiry to colleagues (oculists) in all parts of the world as to relative merits of Credé's method on one hand and the substitution of *protargol*, on the other. He received 31 replies, all but one in favor of Credé's. The exception was the Lyons clinic, where protargol is in use.

Ernst [1] discusses Credé's method very briefly with reference to the conjunctivitis which it is said to cause. No gonococci are ever found in these cases. They are due therefore to the nitrate. He experimented with a 1.5 per cent. solution and still got the conjunctivitis. Finally he found that the one per cent. solutions were non-irritant. At the Cologne Maternity, from January 1, 1902, to July 1, 1904, this author employed the one per cent. solution in 1,111 births. Not a single case of ophthalmia developed.

1 Wiener klinische Wochenschrift, 1904, No. 37.
2 Recueil d'ophthalurol., 1904, XXVI, p. 449.

RATIONAL DIET IN DISEASE.*

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SINCE the days of Hippocrates dietetics has occupied an important place in therapy. In most diseases proper feeding is more essential to the patient's welfare than the use of drugs. As Homer says, "The belly is the most important organ," and without its aid nutrition is practically impossible. To be adapted to the needs of the body, foods must be digestible, absorbable and assimilable. In gastric or intestinal diseases we should give such food as will be digested below or above the seat of the malady.

The quality of diet for the sick should be simple but faultless. Gastro-intestinal auto-intoxication is a danger that threatens with particular liability those debilitated by disease. When a certain dietary scheme is laid down for an individual it should be adhered to as closely as practicable, since "the regular use of certain classes of foods develops corresponding types of glands (Pawlow), and digestive disturbances are often set up by sudden changes in diet, owing to temporary insufficiency of the glands concerned." Within the limits of each class, however, there is always to be had an agreeable variety. With a mixed diet a person will digest a larger proportion of nutrients than with a diet composed of a single food material (Woods and Merrill). Moreover, the acid fermentation of carbohydrates checks the more serious putrefaction of proteins. To overcome pinguidity, Benedict advises limiting the patient to one viand at each meal.

As to quantity of food, the recent researches of Chittenden prove that men are well nourished on from one-half to two-thirds the total calories (3,000 or more) usually stated as required by adults. It is probable that an excess (over 60 gm. for 70 kg. body-weight) leads to more rapid metabolism, with accumulation of irritating waste products, which cause gastroenteritis and favor arteriosclerosis. Men and women who work with their muscles usually need three meals a day. For the middle-aged sedentary city-dweller two meals

1 Centralblatt für Gynäkologie, 1904, p. 1215.
* Read before the Medical Society of the City and County of Denver, April 18, 1905.

are amply sufficient. Such a practice ensures a keen appetite and consequent normal successive secretions, eupepsia, eutrypsia, freedom from flatus and proper peristalsis. Less food is needed when a person is warmly clothed.

After a full meal the stomach should empty itself within six hours (three hours for light meals). Failure to do so shows defective motility (gastroptosis, ectasia) and calls for small feedings at frequent intervals, which are likewise indicated in hyperchlorhydria. If, on the other hand, the secretory function is feeble, it is generally best to prolong the interval between meals. The marked lowering of motor and secretory functions, together with increased tissue waste, in acute febrile diseases, indicate a special need for proteins in the most nutritious and digestible forms, and at short periods (three to five hours). Solid foods often cause vomiting or dyspeptic pains in febrile patients. For the first few days of gastric or intestinal disease, particularly appendicitis and hemorrhage, absolute abstinence from food is best. In pulmonary tuberculosis, present or impending, we should advise and direct the patient as to the necessity of ample nourishment in appetizing variety. In organic heart disease, the minimum of concentrated and easily digested food is indicated at short intervals. Cachectic conditions in general call for frequent fatty and nitrogenous feedings. The stools and urine should be closely watched, however, lest alimentation be pushed beyond the limits of digestion and assimilation.

Diet must be adapted to the sensibility of the stomach as well as to the state of secretion, motility and absorption (Hemmeter). The indications of the palate are oftener correct than not. Thorough mastication is of the utmost importance in dyspeptic cases. One needs to individualize the dietetic treatment of indigestion, particularly the nervous form, in which restriction should not be carried too far. Taking meals at short intervals prevents stagnation of bile, and thereby cholelithiasis.

The ideal temperature of food is that of the body (Uffelmann). Extremes of temperature give rise to gastric catarrh (Hutchinson) and injure the teeth. Very hot drinks may lead to ulcer. Uncooked foods are liable to convey active bacteria or parasites. Shakespeare preceded Pawlow in saying that "Good digestion waits on appetite, and health on both." This psychic relation is especially noticeable during sickness, and it explains the need of a high esthetic standard in catering to nutrition at this time. No dirt, no slops, no cold potatoes or cooked-over messes, but the very best cuisine and service which the household or hospital affords, should be provided for the sick one. The eye and the nose, as well as the palate, must be pleased. Automatic rhythm of the digestive functions is to be cultivated by the utmost punctuality as to meals. All gastric sufferers in whom neurasthenia or deficient motility is a factor should rest after meals (Hemmeter). Children and invalids should always eat dinner about midday. In infectious conditions it is a good sanitary rule to rinse the mouth with a mild antiseptic solution (boric acid, glycerin, lemon juice) before taking food. In old age the diet should be especially light and digestible (non-fatty), in frequent small feedings, with gradual restriction of proteins. Unconscious patients can be fed slowly with a teaspoon or by the stomach tube, or with a catheter through the nostrils.

Milk.—The fat-protein-carbohydrate composition and easy digestibility (one-third the digestive energy that bread requires) of milk render its range of service the widest of all foods in sickness and invalidism. It is also an excellent excipient for the administration of irritant drugs. Many persons object to milk because it coats the tongue and makes them costive and bilious. These objections are generally overcome by gradually increasing the allowance, by the use of fruits and pleasant mouth-washes, and by skimming or diluting the milk or flavoring it with salt, baking soda, HCl, meat extracts, tea, coffee, cocoa, caramel or spices; also by the occasional substitution of broths.

Because of their greater rennin activity, young children digest milk more completely than adults (Rübner). Milk is deficient in iron (new-born infants have a hepatic accumulation), and its too prolonged exclusive use leads to anemia. Boiling milk breaks up some of the complex organic molecules, liberating H_2S from casein, and rendering the food less assimilable; so that children fed on condensed or sterilized milk are more liable to scurvy and rickets. Impure milk is a frequent cause of summer diarrhea.

Meig's method for the artificial feeding of infants is as follows: Take a quart of good, fresh milk, place in a high pitcher and allow to stand in a cool place for three hours; then pour off upper half, without shaking, and keep for use of infant. Make also a solution of milk sugar, 18 drams to a pint of water, in wide-mouth bottle and keep in cool place—not refrigerator—if it sours prepare anew. Make also lime water by putting three or four tablespoonfuls of clean, fresh-slaked lime in quart bottle, fill with clean water and shake; after an hour, pour off clean water through two or three thicknesses of muslin into another clean bottle—can make more lime water indefinitely by pouring water on sediment. Prepare food by mixing three parts of the weak cream, two of lime water and three of sugar water; warm, but do not boil, and it is ready for use. Begin feeding with this food (if necessary) when baby is two days old, giving about ½ ounce at first every two hours; in three weeks, 2½ ounces; at six weeks, 4 ounces—use food in same strength until baby is from six to nine months old.

The inhibitory effect of the fat of milk and eggs on gastric secretion makes these foods of special service in hypersthenic and irritative states of the stomach. Most diarrheal conditions in adults are benefited by a bland diet, largely of bread

and milk. The same is best for genito-urinary patients (Lydston) and in acute rheumatism. In nearly all skin diseases a milk diet with abundance of alkaline waters is helpful. Tuberculous patients derive most good from milk, gaining in weight and strength and unvexed by autointoxication. An exclusive milk diet enhances assimilation and diminishes the uric acid output.

The Weir Mitchell treatment of neuroses with emaciation consists in absolute rest and the administration of four ounces of milk every two hours, gradually increasing the amount and lengthening the interval to three hours, and soon adding poached eggs, chops and bread and butter. Burkart gives zwieback with 100 gm. of milk (flavored with sugar, cocoa, tea, lime water or salt) every two hours, gradually increasing the milk to two or three liters daily after a fortnight.

Pancreatized milk, one or two quarts daily, is a standard diet for typhoid fever. Junket must be made from fresh, uncooked milk. Milk is contraindicated in diseases of the small intestine (Rosenheim). Skimmed and diluted milk, buttermilk, whey and kumiss are very useful in acute nephritis and pyelitis.

Cream and butter may well supplant cod-liver oil and all proprietary emulsions. Children especially need large amounts of this milk-fat for their growing nervous system and because of their relatively greater radiation of heat. Well diluted cream is a useful substitute for milk in the digestive disorders of infants. Cream and carbohydrates, fruit, lemons and green vegetables are recommended by Vaughan in Bright's disease. Pure ice cream is soothing to a sore throat, and, when taken slowly, may be allowed in convalescence from fevers.

Fresh buttermilk (casein finely coagulated) is an ideal food for elderly people. Its laxative and antiautotoxemic effects, due to lactic acid, render great aid in relieving the obscure muscular pains of this period of life. It is also recommended in chronic gastroenteritis. Cottage cheese and the Swiss cheeses, containing hardly any purin bodies, are useful (Haig) in the "uric acid diathesis."

Eggs.—The eggs of fowls are very rich in fats (2 per cent. in white and 30 per cent. in yolk) and proteins (12 per cent. in white, 15 per cent. in yolk), hence are called for in nearly every cachectic condition. As part of the home treatment of pulmonary tuberculosis, Osler has advised giving 24 raw eggs daily. The organic sulphur and phosphorus (over one per cent. in yolk) of eggs quickly separate as offensive gaseous products, and eggs for the use of invalids should be "just dropped" if possible. Eggs are best cooked slowly at 160° to 180° F. Boiling hard or frying retards their digestion to double the norm. Raw eggs can be made more palatable by salting, peppering or spicing with nutmeg or other condiments, or by beating them up with broth or whiskey and sugar, or sherry or brandy. Eggs may also be beaten with boiling water and strained and dropped into consommé, light broth or gruel (Thompson).

Weakly children a year or more old are helped by eating daily from one to three soft-cooked eggs. The relatively large content of lime adds to their value in rickets. In diarrheal and febrile complaints the white of an egg may be beaten up with half a glass of water and pleasantly flavored, to be used as a drink. In feeding young infants Dr. A. E. Grant has suggested the use of a medicine dropper for conveying to the throat a mixture of equal parts of egg albumin and water. A solution of egg-white flavored with meat extract is a good substitute for beef juice (Pattee). Swallowed directly from the shell, eggs are soothing to an irritable larynx.

Following hematemesis or the violent pains of gastric ulcer, Einhorn feeds by the rectum for five days with a glass of warm milk in which a raw egg has been well beaten and a pinch of salt added—or a cupful of warm water containing a tablespoonful of a good albumose. If the gastric HCl is lacking in fevers, it may be added (up to 3.5 per cent. of dilute acid) to the ingested milk and eggs. The yolk cure is recommended by Stern in diabetes. He gives 10 to 40 yolks a day, boiled or in coffee, egg-nog, salad dressings, celery and cauliflower soups, etc. Custards composed largely of eggs are useful adjuncts to a convalescent dietary (Thompson). Eggs are contraindicated in flatulent dyspepsia or any serious gastric derangement and in severe acute or chronic nephritis.

Meats.—Animal proteins are more digestible than vegetable proteins, but they contain more extractives (one-third the N of beef) related to and convertible into uric acid and allied bodies. Red meats are no worse than white meats in gouty conditions. Young meats, though tender, are relatively indigestible and prone to putrefaction. Chicken, young pigeon and game are easily digested. Salt, smoked and pickled meats and most pork are generally contraindicated for the sick and infirm. Crisp breakfast bacon, however, is digestible as well as nutritious. The valetudinarian poet Horace used to find his dish of bacon and greens excellent in all ways.

Meats increase and vegetables diminish arterial tension in arteriosclerosis. Meats are especially indicated in anemias and chlorosis. Lean meat should form the basis of diet in obesity. A meat diet and constipation favor the multiplication of colon bacilli and appendicitis (Benedict), but surgeons, preparatory to abdominal operations, are coming to favor a meat diet for the flat gut it gives. The glandular portions of animals should be prohibited in goutiness, diabetes and nephritis.

The preparation of meats has much to do with their fitness for sick people. Steak that is broiled or finely divided will agree with a feeble digestion where fried meat would disagree. Ground boiled or roasted beef, heated in the oven on pieces of thin toast, or ground raw round steak

baked after stirring with eggs and crackers, is a good thing in atonic conditions of the stomach. Cold storage meats, particularly poultry, have always about them the possible dangers of ptomain poisoning.

The pleasant flavor and appetizing effect of bouillons depend largely on the muscle extractive creatin. Aromatic herbs are often added as a savor. These meat broths, aside from the contained gelatin (best extracted by long, slow cooking) and any cereal or egg additions, possess no nutritive value, favor the virulence of colon bacilli and are definitely contraindicated in goutiness and migraine. Boas recommends a soup diet for eight or ten days in proctitis and fissured rectum. Well-spiced broths are useful to "brace up" with after a spree. Rich gravies are almost never in order, but the fresh juice of broiled steak, with bread crumbs, is very good for young children with digestive disorders. Meat juice contains about 6 per cent. of proteids. It is objectionable because of the possibility of bacterial and parasitic contamination. Gelatin jellies, agreeably flavored and served ice-cold, with or without cream, are of special service in febrile diseases, since gelatin is a tissue-saver, having about one-third the caloric value of albumin. Gelatin may also be given with eggs or milk as blanc mange. The calcium-content of gelatin probably accounts for whatever beneficial effect it may have in gastrointestinal hemorrhages, scurvy, purpura and aneurism.

Zomotherapy (raw beef scraped to a fine pulp and served with salt and pepper or covered with a layer of grated chocolate) has advocates in the dietetic treatment of pulmonry tuberculosis. They claim that the distaste for raw meat is soon overcome, and that the danger from parasites in properly selected meat is of little relative import. Scraped beef sandwiches are useful in convalescence from fevers. Albumoses (best given in soups or purees) are of service in marked motor insufficiency of the stomach.

Fish.—The flesh of fresh lean fish ranks first in digestibility, particularly trout and whiting (Pavy). Fatty dark-flesh fish (salmon, mackerel, herring, eel) are rather difficult of digestion. Salted fish are often a useful addition to the diet in cases of hypochlorhydria. Fish decomposes rapidly, and when canned is liable to give rise to ptomain poisoning, especially if the can has been opened a day or two. The alkaline juice of fish may be neutralized with lemon juice or vinegar. In general, fish may be used as a substitute for meats when the latter are contraindicated.

Oyster (14 per cent. proteins, 15 per cent. fat) and clam broths made with milk are pleasant, digestible and nutritious foods in acute fevers, particularly grippal attacks. The soft part (liver) of the oyster is most easily digested raw, since the accompanying juice contains a diastatic ferment. Clam juice may be tried in the vomiting of pregnancy (Thompson). Crabs, lobsters and shrimps frequently excite urticaria and other signs of autointoxication, partly because they are scavengers by nature.

Fats and Oils.—These stimulate the pancreatic and biliary secretions, but tend to inhibit the secretion of gastric juice. Hence they are indicated in hyperchlorhydric, and contraindicated in hypochlorhydric conditions, and in jaundice, lithemia and skin disorders. They are not usually well borne in acute diseases.

Animal oils and fats are generally more digestible than the vegetable, whereas the mineral cannot be utilized at all by the body. Hot fats are more indigestible than cold. When closely incorporated with connective tissue, as in ham, fat is very refractory to digestion. Foods fried in grease develop irritating fatty acids and are not to be eaten by persons with feeble digestive powers. Graham and oatmeal crackers are rich in fat. Olives are about one-fourth oil.

Because of their tissue-saving value, oils and fats rank highest in the dietaries of most chronic wasting conditions, particularly pulmonary tuberculosis, and in convalescence from acute diseases. Strumous and rickety children should be induced in every way to take butter, cream, bacon fat, olive oil and bone marrow. Fats and oils are generally laxative, but good fats, even in large quantity, are usually well borne in chronic diarrheas (Boas). Taken in excess of the needs of the system, fat is stored as adipose tissue.

In diabetes mellitus the glycosuria and emaciation are best controlled by a diet rich in fats and proteins. Saratoga chips (little starch and much fat) are recommended by Thompson in diabetes. Kleen's diabetic diet consists in restriction of carbohydrates to 60-100 gm. daily, or exclusion from the diet for two to four weeks several times a year (except in severe cases), making up the deficiency with fats (butter), proteids (except milk, cheese and liver), green vegetables and alcohol. The oatmeal cure of Von Noorden may be tried in severe obstinate cases of diabetic acidosis. The patient is fed exclusively on oatmeal gruel, each day's ration consisting of 250 gm. oat flour, 250-300 gm. butter and 100 gm. roborat or other vegetable albumin (or white of eggs may be added after cooling), the mixture being prepared as soup and given at intervals of two hours.

Bone marrow is quite rich in fat, and consumptives do well to partake of it freely. According to Holt, artificial foods for infants contain too much sugar and too little fat, with consequent late teeth, soft bones and flabby muscles. At least 25 gm. of fat can be introduced daily by inunction (Benedict).

Cereals.—The breadstuffs are the principal foods of the human race. They require, however, more proteolytic units than meats, and an exceptionally high amlolytic power. Wheat bread is the most digestible form, and whole wheat bread is generally preferable as containing more proteins (12.2 per cent., as compared with

8.8 per cent. in white) and phosphates, the gluten layer being just beneath the cellulose husk. Macaroni is half again (16 to 18 per cent.) as rich in gluten as wheat bread, and when well cooked is a good substitute for meat.

Bread for invalids should be at least a day old, or, better, dextrinized into thin toast or zwieback. Plain and salt crackers are excellent in atonic dyspepsia, and are rendered more palatable by heating in the oven. Biscuits, pastries and puddings (except plain farinaceous) are to be avoided by persons with weak digestion. Pancakes lead to acne, and carbohydrates in general favor furunculosis. Gluten breads are deceptive in diabetes, since the best of them contain more starch than potatoes do. Oatmeal is very nutritious and may take the place of meats in persons with strong digestion. Like buckwheat, it contains much cellulose. Maize mush and milk is a good old-fashioned combination much neglected nowadays. Corn has specially harsh seed-coats, but the white part of popped corn is a very delicate and digestible form of starch and protein (Benedict).

The rye and graham breads owe their laxative action to the indigestible cellulose. In this connection, Dr. William H. Buehtel has employed for forty years in treating constipation, a half cup of bran steeped with water to the brim for twenty minutes, then the water is poured off and the bran is served for breakfast with cream or orange juice. Cereals containing husk and gritty particles are to be avoided when there is a tendency to gastric stagnation.

Ground barley and rice are particularly bland (little cellulose) foods when well cooked (best strained), and are most useful in the digestive complaints of infants and children. Rice is well flavored with the juice of steak or with butter. Barley is used largely for thickening soups. Infantile colic can often be prevented by giving before each nursing a tablespoonful of thin gruel. Corn and rice meals are less liable to become sticky than wheat flour, and so are preferred for muffins, waffles, gems and pancakes.

To make dextrinized gruels Chapin directs to beat up one or two heaping tablespoonfuls of barley, wheat or rice flour, or two to four heaping tablespoonfuls of rolled oats, with enough cold water to make a thin paste. Pour on a quart of boiling water, and boil at least fifteen minutes in a covered double boiler. Place cooker in cold water, and when gruel is cool enough to be tasted add a teaspoonful of diastase solution, and stir; strain, salt and cool. These gruels serve admirably as temporary milk substitutes in the gastroenteritis of bottle-fed infants and young children.

The dextrinized package foods are nearly all to be recommended, according to individual likings, to convalescents and the subjects of most chronic diseases. Served with or without sugar and an abundance of cream, they are very nutritious and easily digested.

Vegetables.—Many tubers are used as food, because of their starchy composition (potatoes, 20 per cent.). Baking potatoes renders them much more digestible, the heat of the oven being about double that of boiling water. Potatoes, like most coarse vegetables, on account of their water (90 per cent. in turnips and cabbages) and woody fiber, are prone to fermentation, and must be avoided in amylaceous dyspepsia and in cardiac troubles. Sweet potatoes are less suitable for the sickly than the Irish variety.

Vegetable proteids are less than half digested (Brubaker), because of their combination with cellulose. The legumes are rich in proteins, but are peculiarly indigestible, and are best given hulled (cellulose in seed-coats) or in a finely divided state. Legumin also liberates much H_2S in the bowel. In uricacidemic conditions with active digestive powers, they may replace meats. Bean flour (10 per cent.) added to wheat flour makes a very nutritious bread. Peanuts are nearly half oil.

The so-called green vegetables are relatively innutritious (below 5 per cent.) but are rich in iron (spinach has 35 mgm. per 100 gm.) and potassium salts, hence are useful in anemia and scurvy. They should be young and fresh, as on drying they become stringy and tasteless. They are best served in the form of purees. Their absorption as a rule is quite incomplete. In the form of salads (not for dyspeptics) they promote the appetite and the digestion of more nutritious foods. Along with acid fruits, they should form the basis of diet for gall-stones. Celery cooked in milk is wholesome and digestible; asparagus is easily digested; spinach and rhubarb have a laxative action. Cabbage is seldom allowable, but well cooked cauliflower can be taken even by delicate children. The calcium oxalate of rhubarb, spinach, asparagus and tomatoes contraindicates the use of these vegetables in oxaluria and the closely related lithuria.

Arrowroot furnishes a very pure starch, serviceable in gruels, puddings and blanc mange whenever a bland diet is needed, as in diarrheal complaints. This or baked flour may be added to milk. Sago and tapioca are similar to arrowroot. All starchy and saccharine foods, by fermenting to lactic acid, predispose to rickets. Carrots and parsnips are seldom indicated in the sick dietary. The pectin in the outer layers of the carrot serves as a flavoring agent. Radishes may be used as a relish with bread and butter for persons who are not subject to flatulence. The sugar of beets (10 to 30 per cent.) and carrots and the acids of rhubarb, pickles and tomatoes contraindicate their use in gouty conditions. Cucumbers are very indigestible, particularly the seeds. Tomatoes retain their flavor well, and tomato soup is a good means of giving milk to some persons. The sulphur constituents of onions, cabbages and turnips are generally obnoxious to persons of weak digestive powers.

Only soft, tender vegetables and well-strained

purees should be given to subjects of subacidity and anacidity. Most vegetables, sugars and the seeds of fruits are to be avoided in colitis (Boas), but they are useful in simple constipation. Vegetable soups unduly distend the stomach and increase cardiac labor in diseases of these organs. Fungi (mushrooms, truffles, morels) have no place in an invalid dietary.

Fruits.—The organic acids (malic, citric, tartaric) and their salts (K, Na, Ca, Fe) in ripe fruits serve as appetizers and secretory and excretory excitants. The flavor and odor are due to essential oils and compound ethers. The water (75 to 85 per cent.), cellulose, pectin and colloidal sugars promote peristalsis, particularly when taken on an empty stomach, that is, before breakfast. Stewed and baked fruits are more digestible than raw ones. To correct the acidity that causes flatulence, Yeo advises adding a teaspoonful of baking soda to each pound of cooked fruit. Fruits have an alkalizing effect on the blood and urine.

The levulose and mannose of fruits are comparatively readily oxidized, hence fruits are not contraindicated in diabetes. Fruit juices (orange, lemon, pineapple), diluted and given cold, are very grateful in fevers. Scraped apple, mashed potato and fresh fruit juices are curative in scurvy, perhaps by counteracting the mineral acid intoxication on which this dyscrasia is said to depend. It is essential that fruits should be neither unripe (acids and starches) nor overripe, either condition giving rise to bowel disturbance. Fruits are contraindicated in catarrhal conditions of the stomach or intestines, though for diarrhea Ewald recommends a laxative mixture of one part of figs and two parts of prunes. On account of their seeds, berries are best taken with bread. Bananas contain about as much starch (changed partly to sugar as fruit ripens) as potatoes; if used at all, they should be baked as potatoes are. Banana flour (made into a thin gruel or porridge) is recommended (Thompson) as suitable in cases of gastric irritability. Strawberries may give rise to erythema, urticaria or dermatitis. Cranberries, well cooked and sugared and passed through a colander, are a serviceable appetizer, as is likewise a good orange marmalade. Currants and citrons are wholly indigestible (Thompson). Pineapple juice contains a valuable proteolytic ferment (bromelin). Dried dates and figs contain 60 per cent. sugar and 6 per cent. protein, and are therefore very nutritious. Plums, peaches, apricots and raspberries contain the least sugar; apples, cherries, grapes and pears the most. A quantity of apples, peel and all, will check biliary diarrhea (Fothergill). As a preventive of infection, fresh fruit should be washed before eating.

Nuts are rich in oil (mostly 50 to 70 per cent.), and so are very nutritious, but, because of their cellulose, need to be well masticated (better, ground) to insure eutrypsia. They are probably best taken about two hours after meals, when they may pass almost directly into the duodenum. Almond and cocoanut bread and cakes are recommended in diabetes. Chestnuts contain ten times as much carbohydrates (70 per cent.) as of fat; walnuts, much fat and protein. Nuts full of oil all contain 15 to 20 per cent. proteins, except cocoanuts (6 per cent); pecans and chestnuts (10 per cent.).

Condiments.—Common salt is believed to be the source of the gastric HCl, hence is indicated in hypochlorhydria, although its primary effect (Pawlow) is inhibitory to the secretion of the acid. In ordinary asthenic dyspepsia salted crackers and salt fish are often beneficial. A lack of food salt leads to malnutrition; overdoses are irritant and cause diarrhea and diminish the solubility of urates in the blood. In edema and transudations the salt accompanies the fluid into the tissues and serous cavities, five gm. of salt holding a kg. of water here (Javal). For this reason dropsical conditions (especially renal) and effusions in general should be treated dietetically by dechloridation, as with a milk and rice diet. Common salt is contraindicated in epilepsy, and may be substituted here, even in bread, by sodium bromide. Salt and lime (eggs) are especially indicated in scrofulous conditions. Sugar is a prime source of heat and energy, excess being stored as adipose tissue. On account of its tendency to ferment, with production of acids and gases, and to cloy the appetite and impair digestion by depriving the glands of their water, it is best taken sparingly and at the close of meals. Glucose ferments most readily, lactose, least. An acid weak sugar solution (grape juice) is a nourishing drink in acute febrile disorders. When flatulence troubles, cream or lemon juice may be used on gruels in lieu of sugar. Sweets are to be restricted in gouty and rheumatic persons, since they are more oxidizable than proteids, which are thus insufficiently oxidized (Reed). Molasses is a good laxative for children when it agrees in other respects. Saccharin is often substituted for sugar in diabetes as a sweetening agent, but if long continued produces digestive disturbances.

The volatile oils and oleoresins of spices serve as psychic stimulants to digestive secretion and absorption (Boas), and have further some counterirritating reflex stimulating effects. They are particularly helpful in sub- and anacidity and in the atonic conditions of advancing age. They are distinctly contraindicated in irritative (hyperchlorhydric) and inflammatory conditions of the gastrointestinal and urinary mucous membranes and (along with tea, coffee, alcohol, sweets, pastries, pancakes, cheese, sausage, pickles and fried foods) in diseases of the skin and the heart. The choice of condiment is mainly a matter of individual taste; capsicum is about the most reliable, and is of special service in dipsomania. For children, cinnamon, ginger and vanilla are recommended. A skilful use of condiments (ginger ale, etc.) may obviate the necessity of alcoholic stimulation (Thompson). Vinegar has

rational use in salads, since it softens the cellulose of vegetables as well as muscle fiber.

Beverages.—Next to air, water is most immediately requisite to bodily functions, and is especially indicated in fevers to eliminate toxins. The average healthy adult requires three or four pints daily, in addition to that (50 to 60 per cent.) contained in solid foods. Cool water slows the pulse, raises blood pressure and stimulates peristalsis; warm water has the opposite effects (Baruch). Very hot water quenches thirst better than cold. Carbonated water is a gastric stimulant. Water is best drunk chiefly between meals, so as not to overload the stomach and unduly dilute the digestive juices.

Free water-drinking is very beneficial in thick-blooded melancholia, in constipation and in the obscure aches and pains of goutiness and malassimilation. It is the most important medical consideration in gall-stone trouble. It is urgently needed after severe hemorrhage, and massive serous discharges from the bowel. In order to ensure the drinking of a certain quantity (say a glass of water every two hours), it is often advisable to direct the patient to dissolve some harmless effervescent tablet in a whole glass of the liquid before taking. Hot water and hot diluent drinks (cream of tartar lemonade) are indicated in acute Bright's disease. Hot water on an empty stomach is of service in cholelithiasis and in mucous gastritis; cool water, in hyperchlorhydria. For obvious mechanical reasons, a relatively dry diet is to be recommended to sufferers from cardiac valvular and muscular disease with dropsy and other signs of incompensation, and in aneurism, ascites and pleural effusions. Much liquid by the mouth at or near meals is to be avoided in motor defects of the stomach (hyperkinesis, gastroptosis, pyloric obstruction, ectasia) and in nervous flatulence, obesity and asthma. In the last two or three months of pregnancy a diet restricted in fluids and carbohydrates lessens the size of the child without otherwise influencing its development (Friedenwald and Ruhräh). Manges recommends giving water cold (reflex diuretic effect) and in frequent small quantities in acute infectious and septic conditions. Ice produces dryness of the tongue by the action of cold, and glossitis and buccal erythema by thermal reaction. Large quantities of ice cream or ice water have caused sudden death, probably by reflex inhibition through the pneumogastric.

Tart lemonade is an excellent beverage in gouty and rheumatic states (citric acid being converted into carbonates, which render the blood more alkaline), and is a pleasant medium for taking alkaline salts. Hot lemonade, like other hot drinks, favors diuresis and diaphoresis, and thus the elimination of toxic products in coryza, grippe, etc. Sulphuric acid (15 m. to the tumblerful) lemonade is used as a prophylactic of plumbism.

The alkaloidal beverages (tea, coffee, cocoa, chocolate, kola) have as their active ingredients (caffeine or theine and theobromine) substances closely related to uric acid. They also contain considerable astringent (constipating) tannin (13 per cent. in green tea), which is extracted by long boiling and which is said to stay hunger. In black tea the tannin is rendered less soluble by fermentation. Cocoa is really nourishing, being nearly half fat and one-eighth proteins, and, when well borne by the digestive organs, should be drunk freely by thin and weakly subjects. Tea is an efficient gastric sedative in migrainous attacks and in opium sickness. Chocolate contains about 60 per cent. sugar, and is hence quite fattening. Because of the contained theobromine, chocolate or cocoa is an excellent diuretic drink in kidney troubles. Coffee is a cerebral and vasomotor stimulant, useful in collapse and in headaches with low vascular tension, in alcoholism and for opium coma (best given through colon tube). Tea and coffee are contraindicated in all states of nervous erethism, as exophthalmic goiter, and in irritable heart from any cause. They diminish proteolytic digestion in the stomach by one-third (Schultz). The cereal substitutes for coffee are to be recommended whenever hot water is in order.

The value of alcoholic liquors in diseased conditions is a much debated question. Alcohol is a tissue-saver (1 gm. equal 0.071 calorie), being burned in the capillaries to the extent of about two ounces daily. It would seem, therefore, to have some use in wasting fevers (hyperpyrexia, weak heart, low arterial pressure), tuberculous or otherwise, but it is readily abused and should be prescribed with as much care as other drugs. Over 5 per cent. of alcohol in the food tends to inhibit digestion.

The habituation of the patient to alcoholics renders their administration more necessary in acute conditions. Aged persons also bear such stimulants comparatively well. The average daily allowance for sick adults ought not to exceed four to eight ounces of pure whisky or brandy. The administration of spirits should be curtailed when they cause excitement or other mental symptoms, or when the odor can be noticed on the breath. Alcoholic liquors are generally undesirable in gastro-intestinal diseases, affecting the liver most injuriously. The acids of wines and fermented liquors have an irritant effect and make mucous conditions worse (Reed).

Chronic diseases and cachexias are seldom benefited by alcoholic beverages, and there is great danger of inebriety being superadded to the disease. Malt liquors favor the putting on of fat, partly from the contained carbohydrates and partly because of imperfect oxidation and elimination. The galactagogue effect of beer, ale, porter or stout is not to be compared with that of broths and cereal gruels. Malt liquors are contraindicated in gout, obesity, diabetes and urinary diseases (Friedenwald and Ruhräh).

Claret or cognac in water may prove of service in acute diarrheas (Boas). Whisky is some-

times laxative. White wines are more stimulating than red, since, containing no tannin, they are absorbed more promptly. Effervescent beverages, by distending the stomach, are hurtful in heart disease. A cup of hot milk, broth, punch or toddy at bedtime may overcome simple insomnia.

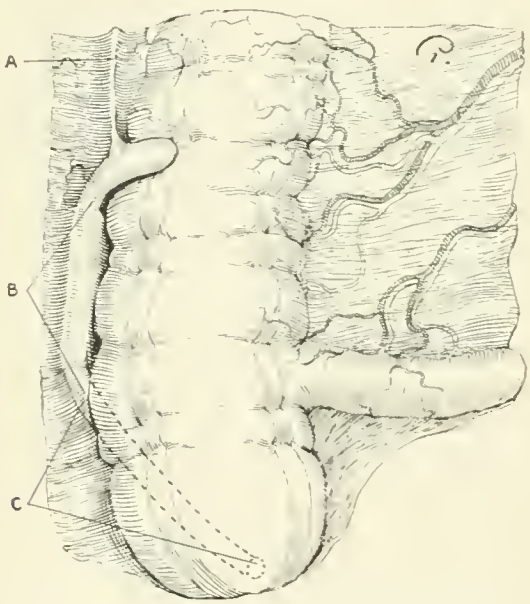
AN APPENDECTOMY WITH AN UNCOMMON LOCATION OF THE APPENDIX AND INVOLVING A MODIFICATION OF THE INTERMUSCULAR INCISION.

BY ALFRED S. TAYLOR, M.D.,
OF NEW YORK.

The patient, Sam'l C., seventeen years old, was operated upon in the surgical service at Randall's Island Hospital May 24, 1905. The history preceding operation presented no features of special interest, and operation was done while no acute inflammation was present. The interest of the case lies in the uncommon location of the appendix.

The peritoneal cavity was entered by means of the intermuscular incision, the cecum was with some difficulty pulled into the wound, and by following two of its longitudinal bands to their junction the base of the appendix was

Fig. 1.



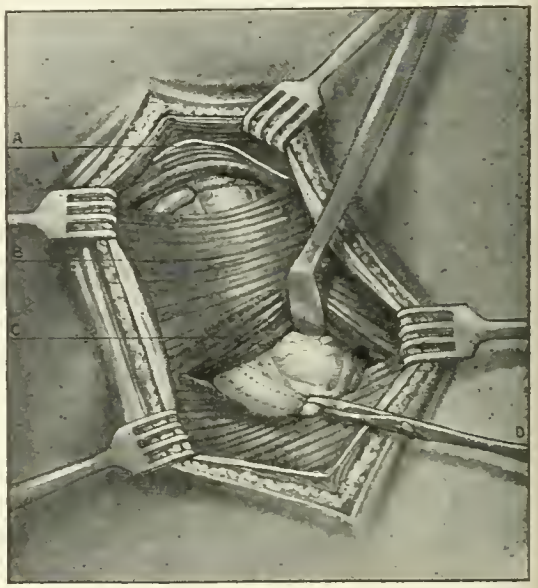
Schematic.—*a*. Peritoneal fold running upward from meso-appendix toward liver; *b*. Retroperitoneal portion of appendix; *c*. Retrocecal portion of appendix.

readily identified and caught with a clamp. (Fig. 2.)

Only a half centimeter of the appendix could be seen, as it seemed to pass immediately behind the peritoneum and cecum. A finger passed to the inner side of the cecum could not detect the distal portion of the appendix, but when passed upward along the outer side of the cecum, felt the clubbed curved tip of the appendix nearly 7 cm. above the upper edge of the incision. This clubbed end for about 2.5 cm. was free in the peritoneal cavity with a meso-appendix from which a fold of parietal peritoneum ran upward toward the liver. The middle portion seemed to be retroperitoneal, and the proximal portion retrocecal (Fig. 1).

The peritoneum was divided at the base of the appendix and an attempt made to enucleate

Fig. 2.



a. Tenth intercostal nerve; *b*. External oblique aponeurosis; *c*. Internal oblique and transversalis muscles; *d*. Clamp on base of appendix.

the appendix with the finger. The retrocecal portion was readily freed, but it soon became evident that the upper portions could not be dealt with by this method, which was blind and did not give sufficient control of any hemorrhage that might occur.

The patient's muscles were very well developed, and traction upward did not expose the necessary field.

Neither Weir's enlargement of the intermuscular incision, nor Kämmerer's incision through the rectus abdominis would give space where it was most needed, at the outer side of the ascending colon. To add the old-fashioned oblique incision through all the layers to the intermuscular incision already made would make a wound which would most likely lead to ventral hernia later.

At this moment the idea suggested itself that a second intermuscular incision at the level of the tip of the appendix would answer the demands of the case admirably. Therefore the incision was continued upward through the skin and external oblique muscle and a second intermuscular entrance to the peritoneal cavity made at the level of the tip of the appendix (Fig. 2).

The mesentery of the free portion was readily ligated and divided. The middle, or retroperi-

toneal, portion was pulled forward to make an artificial meso-appendix, which was then tied off and divided, thus practically suturing the parietal peritoneum beneath the appendix. The appendix was then passed from above downward behind the cecum, where it had already been liberated, and delivered through the lower wound. The appendix was removed and the stump inverted.

The wounds were closed by layer sutures. The patient made an uninterrupted recovery with primary union throughout.

This technic proved to be rapid, was very satisfactory, in that it gave a perfect view of the operative field, and left the patient with an intact abdominal wall.

152 West Fifty-seventh Street.

THE AMERICAN DISEASE: AN INTERPRETATION.[1]

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MEDICAL nomenclature, certainly as regards names for many diseases, stands to-day the most neglected, the most incongruous, the least rational and the least progressive of all the minor divisions of the subject. Many of those most familiar justify a continued existence solely through the fallacious law of traditional custom. In some instances, both name and disease being inelastic—typhoid fever or epilepsy, for example—no special harm is done. In others, as hysteria and chorea, we continue to insult intelligence apparently without either consciousness of shame or hope or desire for reform. There is something of promise in the tuberculosis of to-day rather than the consumption of our fathers, but much remains to be done, the work having scarcely begun. The field of neurology, perhaps, more than any other, needs the scythe and pruning hook. The latter instrument could, in my judgment, be used with particularly beneficial effect if employed vigorously and with discriminating judgment in neurological nosology. Its first work, if in my hands, would be to clip and trim and shape into at least some semblance of definite form and substance that phantom, once a tree, now a forest and rapidly becoming a wilderness, so rank and riotous is its growth, neurasthenia. No shorter road to nervous prostration exists than along the route of present interpretation and mental comprehension of the term as generally understood or misunderstood. I confess to an antipathy—I think rational, though amounting to almost an obsession—for the word. Originally intended to possess a definite significance, its field of application has been so elaborated and broadened and abused that to-day it means almost anything and with equal truth almost nothing. The inspiration which gave it birth marked the genius, but the child has grown a monster, fattening upon the flesh of hundreds of brothers and sisters, and even its cousins. It is still from custom classed among the neuroses or psychoneuroses, and thus the special property of the neurologist, but like its twin sister—the only sister left, by the way—hysteria, it has wandered afar with an omniverous appetite, and is known to-day and claimed in some one of its hydra-headed forms in every field of medicine. To the stomach specialists belong the gastric and lithemic types, to the surgeon the postoperative and some of the traumatic cases. The sexual neurasthenic is the property of the genito-urinary specialists, the reflex cases are almost equally distributed to those who know the eye, the ear, the nose and throat, while the neurologists divide the remainder with the gynecologists, or play battledore or shuttlecock with all. The general practitioner alone is counted an invader in this field, and he, wise man that he is, with appreciative philosophy, rarely feels himself aggrieved.

My criticism is not of the term etymologically. On the contrary, properly restricted in interpretation, it is an excellent example of word-making. It should stand, however, for either fish, flesh or fowl—for a definite entity or syndrome—if retained in our nosology. If discarded in this field, by all means keep it, but restrict it to the broad descriptive significance of a generic term alone. I am not yet willing to accept the dictum embodied in the recent paper of an eminent American writer who, with a stroke of the pen, announces the passing of neurasthenia, for which he would substitute a group of pure psychoses, if for no other reason than that he leaves us none the better off for such a begging of the question; and yet one is almost tempted to let it pass away into final oblivion and without a protest on reading a serious thesis by another recent writer upon neurasthenia in babes. If it is to continue a neurological and general medical waste-basket into which we are to dump all forms and degrees of illness associated with irritable nervous weakness to which we cannot attach a standard label, then it cannot be lost too quickly. It means to-day to the student mind mystery, confusion, chaos and correlated aversion, curiously mixed with a contradictory fascination; to the patient it has become a term full of suspicion; to the medical teacher it is a term of reproach. No observation or experience during my fifteen years of postgraduate teaching has been more emphasized than this attitude of mind of the student body. Year after year and many times a year, the cry has been the same from all my classes: "What is neurasthenia?" I think you will agree with me that something should be done. The solution of the problem to me seems relatively simple. Let us stop running after strange gods and the making of false idols and return to the worship of our fathers and to one faith. There *is* a nervous affection—the very same which originally inspired Dr. Beard to coin the word, with a broadly constant symptom picture, a more constant etiology,

[1] The Address in Medicine read before the Ontario Medical Association, June, 1905.

a conjectural pathology, a fairly certain prognosis and a definite plan, in principles at least, of treatment, the chief and essential symptomatic manifestation of which is an irritable, quick exhaustion of nervous function in many or all directions. It has become almost lost, it has suffered degradation, it has fallen from the genus to the species in the literature of the subject, not so much through intrinsic conditions, but because of the confusion and chaos of interpretation. The dignity and importance of this subtype, its rapid and progressive increase, the charm and fascination of its study and of its remedial and curative treatment are such as justify and, indeed, demand that it be taken from this chaotic mass and be given a distinct identity. Let *this* be neurasthenia. We shall simply give back to Cæsar what was his—lost property to the original owner. It is but the restoration of a birthright. How the thief will cover his nakedness is his problem, not ours.

I have but borrowed for a purpose my title, and having explained my motive, I discard it. And yet it is not altogether bad. That it has the ring of cheap sensationalism is a just criticism, though nothing was further from my mind, a disavowal which I hope has been anticipated and is accepted. In much that the condition that I have in mind represents, in much that is peculiar to this affection—to neurasthenia—the term, the American disease, is both accurate and appropriate. As I conceive it, it *is* an American disease indigenous to this soil and essentially a product of causative conditions peculiar to this country. That it now exists elsewhere, and probably always did in sporadic form I do not doubt, but this is its home, this its soil, this the atmosphere in which it luxuriates. What is this disease? What are its symptoms? How differentiate it? What is its etiology and prognosis, and how is it to be treated? My limit of time will permit me to create the scheme of the picture only, but if the viewpoint be the proper one and the perspective liberal in breadth any one of my audience will, I am sure, be able to do the filling in. I would count my work well done and a good end accomplished if I did no more than infect you with the enthusiastic interest with which the subject inspires me. In the effort to do so I shall create part of the perspective referred to. First as to your material: Neurasthenia never occurs in fools. The idea constitutes a paradox. Neurasthenia may make a fool, but you cannot make a fool a neurasthenic. It is a disease of bright intellects, its victims are leaders and masters of men, each one a captain of industry. Each case is unique as a study if you are to study helpfully. There are no arbitrary limits to the horizon of studious effort. The political history of the world has been made largely by paronoiacs. Mahomet, Peter the Hermit and Oliver Cromwell are examples in point, to go back no farther. In each there was an imperative and an impelling monomania. The world of literature, of art and of science, of fruitful endeavor in all higher fields, is indebted in an analogous degree to the neurasthenic, analogously endowed with an imperative and an impelling energy. Dr. Gould's list includes such names as Carlyle, Wagner, Huxley, Spencer and many others. The confidence, the faith of patients of this type, is to be classed as an inspiring stimulus in itself and is well worth the struggle to grasp understandingly this subject. That yours is the helping hand depended upon by such men—such giants—whom you may lead as little children; the knowledge that you, and sometimes you alone, may bring back into the world's arena of action and into the old supremacy, such factors in the world's work, represents to my mind an objective, a purpose, a sphere of usefulness second to none of the many laudable ambitions along the highest planes of medicine.

In painting the clinical picture it would mar my scheme to paint an individual likeness. I shall give you first the basis for a composite photograph, made up of the case histories of fifty selected patients from private practice. Forty-two of these were American born, the remainder, 8, with two exceptions, had been residents more than fifteen years; 22 were from New York City, 4 from Connecticut, 3 from Massachusetts, 5 from Pennsylvania, 2 from New Jersey, 5 from as many different Southern States, 1 from Canada, and the remaining 8 from as many different sections. Forty-three were from cities of more than 100,000 inhabitants, although only 21 were city born. The average age was thirty-seven years, the oldest sixty-two, the youngest twenty-six. Without a single exception all were brain workers. Sixteen of these fifty had been makers of history in different spheres, some large, some small; mercantile, literary, religious, scientific, political or economic. Two of the number were among the hundred captains of industry assembled in a list made to commemorate a national function celebrated a few years ago. By occupation 13 were financiers, in multiple mercantile lines, really better described as promoters; 6 were lawyers, 3 clergymen, 2 merchants, 5 physicians, 5 brokers, 4 school teachers. Of the remaining twelve, 2 were professional politicians, 2 corporation officials, and 4 managers of large industrial plants. Four of the fifty were men of independent, self-acquired means, who described themselves as having no occupation at the time of record. They have been included in the groups mentioned according to previous occupation. Four of this series were women, 1 a journalist, 1 an actress, and 2 of them teachers. Fourteen of the fifty were unmarried, the age average of this series of fourteen being relatively high, forty-four years. The four females were all childless, though two of them were married.

Instead of an analytical elaboration of individual symptoms, let me give you a standard clinical history selected from the series of fifty as a type portrait.

M., aged thirty-three, male, born of healthy good stock, American parentage, the only handi-

cap being parental poverty. Driven by necessity and by that subtle factor, temperament, to early effort in extraordinary degree, he acquired the strenuous, ambitious, high tension, keenly sensitive habit. He could not afford a liberal or broadening education because his own dollars paid for it. At nineteen he was in business as apprentice in a large establishment manufacturing mechanical engineering appliances. At twenty-six, with a capital of $500, he organized a company, had it incorporated, was president, secretary, treasurer, superintendent, salesman and chief stockholder, entering into competition with established and lavishly capitalized rival corporations. Awake at 7 o'clock, he hurried through breakfast a few minutes later, mixing an omelet with an order or a countermand, assimilable sometimes with the former, always incompatible with the latter; taking in with his coffee the London market or the Paris bourse, dividing the steam supply between brain and stomach when it should have been all turned on at the point of physiological demand. A hurried walk to the train, possibly a delusional constitutional in this very walk, the steam being still turned on to the top floor. In the office a pile of mail, interviews with clerks, orders, directions, instructions, detail work in every department. Just here *en passant* is laid the immediate foundation of the breakdown. It is the man of detail, the man great in everything except the qualities which make the general, who becomes the neurasthenic. It is the crime of attending to minutiæ which makes the nervous derelict. The general is never a neurasthenic. It is the one flaw in the statue of true greatness. That quality, the highest, which helps us to select our lieutenants, is always lacking. The neurasthenic is the archetype of the Pooh-bah. He is not only general, but also colonel, major, captain and private. The penalty is inevitable. No man can do the work of four along higher lines without paying for it.

After four hours in the office this man goes to lunch, tired, nervous and with preoccupied mind. He takes his secretary or manager, and again the attempt is made to mix a steak or an omelet with a business problem. The steam is still turned on at the top, our patient eats fast and drinks a lot of water or other fluid, prematurely flushing the contents of the stomach into the intestine. Already by nervous inhibition he has interfered with biliary and other secretions. The intestine, the duodenum, cannot take care of the albumenoids—the proteids—properly. It cannot take care of its own. The alkaline reaction of duodenal secretion has been upset by the flushed overflow of acid gastric juice, the secretion of bile has been inhibited by the state of mental tension and the diversion of energizing agencies from digestive viscera to brain. Fermentative decomposition with resulting ptomain and toxin formation follows, deficient nutritional assimilation plus chemical irritation are added to cell fatigue along a routine line without rotation. Notices of protest begin to come into first subconscious recognition, but are disregarded. They may come from any one or many sources. Headache of the cincture or helmet type, vertigo, a sense of irritable weakness, mental and physical, follows; vague mysterious messages in a strange language, never heard before, are received, but not understood. This patient has always been well and has had no training along the lines of familiarity with symptoms. These messages, at first ignored, sometimes hushed with a cocktail or a highball, or many of both, become more and more continuous and imperative. The habit of almost mechanical activity of mind projects itself into the hours for sleep, insomnia develops, at first as dreamful anxious sleep, then with fitful, broken sleep, and later with an allowance cut by more than half from the normal. He wakes tired, irritable. The pneumogastric is one of the first and often the most emphatic of the aggrieved protestants. Palpitations, overaction, an irregularity partly toxic, lay the foundation for what later has become an obsession of fear of sudden death—præcordlangst—heart anguish. He fears to be alone, to walk alone, to sleep alone. To this other fears have been added. A perfectly legitimate dizziness has laid the foundation for an almost hallucinatory persistence of this impression. Rapid motion, as in the cars or a carriage, high places, sudden changes in the visual perspective, originate as many phobiæ. Every nerve gets on edge and this hyperesthesia of auditory, or visual, or olfactory, or gustatory, or pneumogastric nerve, varying, as it necessarily does, in degree, gives explanation for the protean system picture. It is the mystery of it all which leads to introspection in attempts at explanation, and finally to an exquisite exaltation of subject consciousness, a veritable delirium of anguish.

Neurasthenia is essentially a recoverable affection. In a majority the recovery is complete and final. In a few, usually neglected or mismanaged cases, the recovery is imperfect, relapses are common and the neurasthenic habit becomes almost a part of the individual. Even in these cases a steadily progressive tendency to recovery and to a normal poise as the final fixed habit may be established by persistent effort based upon an intelligent understanding of the general principles of treatment plus an appropriate application of such principles to the personal equation of the particular patient. Neurasthenia carries with it no penalty to succeeding generations. This statement is contrary to *à priori* reasoning, and also contrary to routine teaching and unthinking or ignorant belief. It is a statement based, however, upon careful observations in an extended experience, and I believe it to be absolutely true. The victim pays the whole penalty; the disease is free from the law of entail. The high average standard of good health and nervous poise in the children of neurasthenic fathers has been a frequent personal observation.

I do not believe that any individual case of neu-

rasthenia ever originated in a single cause. The very essence of the affection makes such an hypothesis a paradox. Equally true is it that no single agency is sufficient to explain the prolonged maintenance of this condition. Any one of many cases may appear to dominate in a given case and for a given time, but the carefully studied etiology will prove a complex one in every instance. The list of stereotyped and empirically accepted causes is a long one and undergoes a progressive expansion from year to year. Overwork, worry, prolonged mental tension and anxiety, malnutrition from deprivation of food, sleep and rest, toxemia of autogenous and heterogenous sources, shock, trauma, reflex irritation, and as many more are on the list. Most of these are contributory factors only, and some are effects which are essentially secondary, being part of a vicious cycle, vicious in fact and even more so in interpretation. The insufficiency alone of any of these factors is tacitly admitted in the usual statement that an hereditary predisposition is fundamentally necessary, a proposition not sustained in my own experience, though carefully investigated always. Neurasthenia is, I believe, essentially an acquired state and heredity, except of temperament, and a high grade cortex is an almost negligible equation. My chief criticism of the ordinary etiology as outlined is the narrow viewpoint with resulting technical limitation in treatment. What is the cause of these causes? *The* factor in neurasthenia, in the American disease—the factor common to all cases—is, broadly, that of atmosphere—the atmosphere peculiar to this country, the atmosphere of limitless possibilities, not in one field, but in all; in commerce, in art, in literature, in every field of intellectual accomplishment. It is this ether of limitless possibilities which stimulates the individual to a degree of effort, of tension, of strain, of superstrenuous endeavor, impossible and unknown, except by the infectiousness of example, elsewhere. There is no limit to the game, and anybody may sit in. America is the only country in which you can go in with one white chip and have a chance to quit the biggest winner. It is this atmosphere which is the incentive to overwork. It is the anxiety, the tension, the strain of the game, which brings worry, loss of sleep and all the rest; and even here the penalty comes indirectly. The intoxication of endeavor, the delirium of effort, is at the expense of all conservatism. The laws of nature—inexorable as fate—fate itself in fact is violated not daily, but every hour. The hygiene of life is set aside. All kinds and degrees of insult are offered to brain, stomach, heart and every other organ. Day after day the steam is kept turned on and at full pressure to the one floor, and, worse still, often to the one room. Is it any wonder that all the rest of the house grows cold, or that, the power being insufficient, the machinery of the lower floors works poorly and makes poor goods? Every function suffers sooner or later. One after another, and sometimes several together, they protest, then openly rebel and finally go on strike. Indigestion, toxin and ptomain formation, torpor of sewerage function and resultant defective elimination add the element of chemical irritation, or autotoxemia, or lithemia, to the situation. The tired brain cell gives way under this added handicap and goes out on sympathetic strike.

The accident of dominating symptoms in a given case is but rarely of any value in determining the etiology. Gastric and lithemic and other types may be recognized and distinguished symptomatically with some minor advantage, but no more serious error of interpretation exists than to conceive of them as primary etiological types with a correlated therapeusis. Anti-lithemic drugging will not cure a lithemic neurasthenia, nor will lavage make well your so-called gastric cases.

I have again and again noted a urine with specific gravity above 1.030 with 14, 16, 18 and even 20 grains of urea per ounce, with lime oxalate and urates in abundance, all these conditions giving way to the normal under direct treatment, the neurasthenia remaining essentially unchanged. I never knew a sexual neurasthenic, so called, to be cured by any plan of direct genito-urinary treatment, and this statement applies with equal truth and force to all efforts (and I have seen many) to cure the reflex cases by removal of a supposed cause in any peripheral irritant.

I know of no condition in medicine which demands more exactingly of the physician all the diagnostic resources of the profession, and yet mistakes in diagnosis should be rare. The symptomatic semblance of neurasthenia—the pseudo forms—which may sometimes present much of the picture, but will always show a radical omission or addition somewhere, should always be in mind and should be excluded carefully seriatim. More than one patient referred to me as a neurasthenic has been found to be the real victim of tuberculosis, of malaria, of Bright's disease, of gastric ulcer or some other similar affection. Anomalous forms of Basedow's disease in women and various toxic states among men have represented especially common mistakes in diagnosis. Paretic dementia in its incipient stages and some forms of melancholia, particularly the affective types, demand special mention. A guarantee of escape from the opprobrium of error as to the pseudo types is possible only through an exhaustive recourse to all measures and methods of accurate information. Elaborate urinalysis, blood examinations and often examinations of the sputum is a routine procedure with me. In any case in which the dominant symptoms are referable to a particular function or organ persistently, I am proportionately suspicious of a local disease at least complicating the general state. It should not be forgotten that a neurasthenic may have a coexistent Bright's. In Basedow's disease, which,

as we know, may utterly lack the spectacular symptoms, the absence of goiter and of exophthalmos may easily lead us to interpret the nervous irritability, the quick exhaustion, the fears, the digestive and other functional disturbances, the loss of sleep and the widespread vasomotor symptoms as due to a neurasthenia, but the habitual quick pulse, the shallow respiratory action, the diarrhea and the *tout ensemble* of constancy in the picture will always give rise to doubts which will be converted into negative certainty when the etiology is considered. From paretic dementia we can distinguish neurasthenia by the presence in the former and the absence in the latter of organic signs. No matter what the degree of incipiency, if the disease has advanced to the point of inducing symptoms, we shall find in paresis somewhere some of the physical signs. Special care should be observed in the melancholic (by the way, the majority type) forms of paresis. In melancholia we have, no matter what the subtype, a constant syndrome; a characteristic facies, a postcervical ache, a shortened sleep, an irrational melancholy and a tendency to suicide. In neurasthenia this facies is absent and the tendency to suicide is rare. Melancholiacs get to sleep as a rule with but little difficulty, but wake too soon, at 2, or 3, or 4, and sleep no more. In neurasthenia they sleep lightly, dream much and wake often. The postcervical ache may belong to both, but in neurasthenia it is often a cincture or helmet headache, quickly dissipated by mental diversion. The neurasthenic can laugh; the melancholiac cannot. For a melancholiac to laugh is to refute the diagnosis. From myasthenia gravis it is to be distinguished chiefly by the absence of dominant bulbar symptoms.

What is the pathology of neurasthenia? The answer is almost anyone's guess, and yet to know the lines of experimental research and investigation already established is a long step in the direction of what will finally prove the correct guess. The work of Hodge, familiar to you all, was a far call in the right direction, and while it has given us no final solution, it probably paved the way to the yet to be demonstrated pathological explanation of these cases. The effects of fatigue, of worry, of irritation, upon the brain cell structure was proven to be actual and demonstrably so, by his work. Barrows has added observations which demonstrate with equal positiveness the structural and sometimes actually organic changes and results which follow to the cell from malnutrition. All neurasthenics, it should be remembered, are examples of malnutrition from faulty assimilation and metabolism, usually secondary. The work along chemical lines with a final explanation in states of autointoxication promises much, but that which appeals most strongly, even though as yet it offers least in a tangible, material way, is a combination of the others with an imaginative elaboration of the ion theory. The analogy of the highest governing nervous system with a telephone service in a large city has occurred to many, appeals to most of us and is familiar to you all. We have all been able to grasp mentally some conception of the power plant, the conducting wires, the receiving and transmitting station of the subscriber and a central, but the plan of a central switchboard is where we stop. The hello girl of the central station will not do. She is too unreliable; she goes to sleep on post; she talks distracting gossip; she has no sense of duty at times. Her sole stimulus to duty well done is often the approval of the inspector only and the $10 per week. Neurasthenics don't gossip, they don't go to sleep—more's the pity—and yet the switch gets out of gear and you cannot get a connection, or if you do there is a buzz and you can't understand which stands for the weakness; to which we might add in carrying out the analogy, the usual profanity, to represent the irritability. Mendelssohn, Frankhauser and others, in attempts to give a tangible, graspable explanation of electrical action upon nervous function, have advanced and elaborated what might be called the theory of wandering ions. You will recall that, when first announced, the neuron theory, in addition to facts proven, claimed, but did *not* prove a distinct individuality for each neuron, with no anastomosis anatomically with other neurons. This undemonstrated claim was unaccepted for the reason that it left less explained than before the observed and familiar facts of concert of action and synergistic relationship of nervous function which seemed to demand some anatomical connection. Imagine bodies endowed with autogenous mobile life, which stretch an arm from 1 to 5, or A to G, wandering about with a restless usefulness, connecting two separate souls who want to get in touch in the same way but with infinitely more reliability, as the central hello girl connects you up with the number you send in from the transmitting phone. Imagine these little bodies, goaded day after day to extraordinary effort, allowed no rest, no sleep, whipped by alcohol, or tobacco, or coffee, suffering from deprivation and irritation in every way, rations served foul, working for a thoughtless, selfish, utterly inconsiderate master. Do you wonder that they get discouraged, tired, exhausted and confused, taking messages wrong, turning in a fire alarm here, calling in the police there, doing many things which they should not do and leaving undone those things which they should do? Very pretty, you will say, but fanciful. I admit it, but I deny any more of fact in any other theory.

The first step—the essential foundation of any plan of successful treatment in neurasthenia—is the establishment of a proper relation between physician and patient. The status of the physician should be firmly established before the question of treatment is considered at all. He will have laid the foundation of any plan of successful treatment well in a direct ratio with the thoroughness, the exhaustiveness of his diagnostic examination of the patient. Nothing should be taken

for granted—no second-hand information should be accepted. At the risk of being tedious, examine for yourself. Five minutes or less is often more than sufficient time for a final diagnosis in paresis or tabes—two hours is often time well spent in the first examination of a neurasthenic, and this is true even in the instances in which as many minutes only have been necessary to convince you of the nature of the case. Remember there are two parties to the transaction. Your own enlightenment is not the only requisite. The neurasthenic always takes himself and, at least, some of his symptoms seriously. To tell him abruptly that this or that means nothing is not convincing to him, however true to you. No obvious foundation has been laid for so positive a statement in so short and superficial an examination. To you many of the symptoms are distorted by exaggeration; to him they are real. Do not forget the axiomatic fact that neurasthenia does not develop in a fool, and as corollary to this fact make your appeal to the intelligence of your patient. Explain things; give the patient something tangible to grasp, some explanation which appeals to reason. He will leave the ether of imagination and come down to the terra firma of fact gladly. The effect at first may be upon the subconscious ego only, but the leaven of action will later rise into controlling consciousness. The physician, by the way, should never think, or believe, or guess; he should know. Therefore, he should lay at least a plausible foundation for such knowledge in a patient examination at the first interview. It is just as important that a reverse attitude should be the rule thereafter. Discuss with your patient in subsequent interviews every topic conceivable except his ills. At stated intervals go over the case objectively, taking an account of stock. Where favorable progress is noted, not only mention it —prove it; if still *in statu quo,* explain the delay in results. Silence is rarely golden in such situations. Equally important with this factor of proper relationship between doctor and subject is the control of the patient's environment. Just which is proper varies with different cases, but once settled, it should rarely vary with the case. Compromises and concessions are always dangerous. The patient's hand should never touch the tiller, once you have taken charge of the ship. First, place him so as to minimize the influence of all adverse factors, domestic, financial or otherwise. Break up, as far as possible, all subtle or obvious factors which contribute to a morbid introspection by conscious or subconscious association. Encourage objective consciousness by a change in the physical and mental atmosphere. Sometimes this must be done radically, and the patient cut out from the family or from his business. Never leave him alone, and never leave him idle. Put with him a tactful, resourceful, sensible attendant—train your own nurse, by the way—train him over again, if a hospital graduate. Don't call him a nurse in any event—neurasthenics resent trained nurses. Give all your instructions to this nurse-companion—never to the patient, who should have nothing whatever to do with his case. Arrange all details of diet, of exercise, medicines, baths, diversion, etc., with the nurse. Give your patient a chance to escape from a knowledge every hour of the day that he is a patient. Keep him busy, fill in every minute of the day. A salt rub in the morning, the patient standing in eighteen or twenty inches of hot water, three minutes of practice in deep breathing exercises, after which comes breakfast. All meals should gradually be made as full and as nutritious as possible. I observe idiosyncrasies, but no other law of special diet. After each meal from twenty to thirty minutes of recumbent rest is insisted upon—a habit observed by nearly every carnivorous animal, except man. Next comes the daily visit to my office, with treatment by the galvanic current, one electrode back of the neck, the other over the forehead, both as large as possible, in order to get the utmost diffusion at the point of contact and thus a maximum of electricity with a minimum of discomfort from local action. A steady battery, a rheostat, a meter, and proper electrodes are absolutely essential. Part of the benefit is undoubtedly due to suggestion. This is a small part, however, by comparison with what I am firmly convinced by years of careful observation to be an intrinsically dynamic effect of sometimes striking benefit from electricity thus administered in these cases. I never exceed five milliampères in amount, or half an hour for the seance. Usually I begin with one milliampère and a five-minute seance. On leaving my office, my patient goes direct, riding or walking, according to circumstances, to a gymnasium, the director of which, Dr. Watson L. Savage, is a medical graduate, whose life-work has been given with enthusiasm to the cooperation, elaboration and perfection of a plan, which we both believe will, when perfected, prove a specific, curative treatment for these cases, a proper environment and control being the only other essentials. By this plan of psychophysical, educational control, we secure, by the indirect method, what is always difficult, and often impossible, by any direct plan—a lowering of tension, a mental relaxation, a return to rational inhibition, to order from chaos. These patients are taught the lesson of physical, muscular relaxation —how to lie down, how to go through the mattress to the bottom, how to turn loose physically. That the muscular system is energized and overkeyed into states of hypertension through sympathy with states of mento-nervous exaltation is familiar to us all in the tense mouth, the corrugated brow, the clenched hand, the restless walk. We simply start at the other end, and re-educate the higher through the lower. The quickest, the surest, the most rational way to key-down a man mentally is first to key him down motorially. I have waited for ten years of results to accumulate before announcing publically, except in the

lecture room, the value of this procedure. I give you no experimental theory. My unqualified endorsement is based not only upon a rational conception but many confirmations in experience. I count this part of the plan of treatment in neurasthenia one of the most positively helpful and essential of all the major details. The afternoon, following lunch and another half-hour of rest, is spent out of doors—a drive, a horse-back ride, golf, tennis, a walk, a visit to some museum or place of public interest: a shifting from one to another of these various diversions largely based upon the personal equation of temperament and aptitude in your patient, fills up the afternoons. In suitable cases part of the evening must be filled, and occasionally the theatre or a concert can be utilized, but never at the expense of sleep, if insomnia be present. A half-hour of massage at bedtime closes the day's work.

This one symptom, insomnia, must be controlled always. Make your patient sleep—count a dreamful night insomnia. Veronal, trional, sulfonal, in 5. 10 and 15-grain doses, are effective and satisfactory. I often shift them. All should be given in some hot menstruum. No nervous patient should ever know his drugs—send the prescription yourself, and always mark it, "No copy. Do not repeat." Fifteen years ago a few neurasthenics under my care came back to health and nervous poise in spite of the drugs which I employed in treating them. For five years past, using less than half the drugs, my percentage of recoveries has increased fourfold. Drugs play a varying part—sometimes no rôle at all, again a vital one. Some patients demand them, others are indifferent, and still others need them neither mentally nor physically. Sleep must be secured and maintained, elimination and prompt sewage function regulated and complicating accidents combated. For temporary use, until the regime outlined becomes effective in lessening it, the mental state of habit unrest and hyperpsychical esthesia should be controlled, and the drug which most effectively accomplishes this purpose is opium in the form of the denarcotized, aqueous extract in doses from one-tenth to quarter-grain three or four times daily. Free water drinking between meals is a desirable habit to encourage and a positive water, always symptomatically remedial in cases in which lithemia is an aggravating factor, is the Royal Fachingen. I do not believe in the sanatorium treatment of these cases as I know sanatoria. If the ideal sanatorium existed, the sanatorium plan would be ideal. I add nothing to your personal knowledge, when I tell you that such an ideal does not exist. I can conceive of no more fitting nor important statement in conclusion than one of condemnatory criticism of the misapplication of the Weir-Mitchell plan of rest and isolation in these cases. It is to be condemned first, as involving the conception of a *routine system or plan* of treatment; second, as encouraging introspection; and third, as violating in principle all intelligent interpretation of the whole subject. For women and feminine males it will do no harm; for men and masculine women it is an insult to intelligence.

105 West Seventy-third Street.

MEDICAL PROGRESS.

MEDICINE.

Edema of the Feet and Legs.—During the last three years particular attention has been paid to the investigation of the relation between dropsy and the retention of chlorides in the tissues. It has been shown in a definite manner that the question of chloride ingestion and retention has a very important influence on the production of anasarca. It has also been demonstrated that in health an excessive ingestion of chlorides may lead to an increase in the weight of the body, as a result of the tissues retaining more fluid than under normal conditions. J. H. Bryant (*The Practitioner*, August, 1905) records a case in which the excessive ingestion of chlorides was followed by not only retention of fluid in the tissues and a consequent increase in weight, but also by marked edema of the extremities. The patient was accustomed to taking 300 to 600 grains of salt a day. Examination of his urine showed the presence of 1.86 per cent. of chlorides, *i.e.*, nearly three times the normal amount. After reducing the amount of salt ingested the edema disappeared and the urine contained only .98 per cent. of chlorides. Widal and Javal found that, in cases of interstitial nephritis, doses of sodium chloride up to 150 grains did not give rise to edema, but, in cases of parenchymatous nephritis, the result was different, edema was produced. They found that the chlorides were not excreted entirely, and that, as a result of their retention, the fluid in the tissues was retained. They further showed that by increasing the amount of chlorides in the diet the edema increased; but, on the other hand, if the ingestion of chlorides was diminished the tissues were drawn upon for their reserve chlorides, and as they were used up the edema disappeared. They also demonstrated that there was a definite relation between the hydration of the body and chloride retention, by changing three men suddenly from a diet rich in chlorides to one almost devoid of chlorides, the result being a reduction of the body weight of four or five pounds. The belief expressed by Widal and Javal, that the elimination of chlorides by the kidneys is a specialized function of these organs, offers the best explanation of the occurrence of edema of the legs in this case. It may be presumed that for a considerable time the kidneys had been able to deal with the excessive amount of chlorides presented to them for elimination, but it is equally reasonable to suppose that sooner or later there would be a limit to this overwork, followed by a breakdown if persisted in, and that it was a failure of this specialized function to continue at high pressure which led to an abnormal retention of chlorides in the tissues, and thus produced the dropsy.

Causation of Arteriosclerosis.—J. M. Cowan (*The Practitioner*, August, 1905) reviews the various theories that have been advanced to account for the production of arteriosclerosis, and arrives at the following conclusions: Arterial damage may result from many and various causes. Continued high blood pressure invariably, in time, affects the vessels, and this is one of the most important causes of widespread disease. High blood pressure may be secondary to renal lesions, or may originate without any renal flaw. It is in the latter case the result of alimentary wrong-doing. Excess,

relative or positive, of the foodstuffs or of alcohol, intestinal fermentation or putrefaction, hepatic, pancreatic or gastro-intestinal insufficiency, may thus all be the initial fault. The arteries may be damaged in various intoxications; the metallic poisons (lead, mercury, etc.) comprise one group, and the bacterial toxins (rheumatism, enteric fever, etc.) another. Bacteria themselves may be found in early lesions. Syphilis is a frequent cause of local lesions. Severe continued physical exertion, however it may act, is probably also a causal factor.

Physical Degeneration and Syphilis.—Referring to the question of physical degeneration F. J. Lambkin calls attention (*Brit. Med. Jour.*, Aug. 19, 1905) to syphilis, the prime factor in causing it. That this is true is generaly acknowledged, and the question arises as to what advance has been made in the treatment. Undoubtedly the treatment of syphilis has materially advanced, but it is questionable whether or not civilians have taken advantage of it. The immediate signs and symptoms have been greatly ameliorated during the past decade, but the returns of lunacy present a terrible record. In the army both the early and late signs and symptoms have been materially diminished. This has been accomplished there chiefly through the system employed. This consists of hospital treatment until the active signs have disappeared. Then the patient is injected intramuscularly once a fortnight with metallic mercury in form of cream, ℞x containing gr.i, for three months. Following this there is two months intermission, and again three months active treatment. Usually at the end of this period the disease has been stamped out. The insoluble salts of mercury are preferred, since the injections may be given at longer intervals. The injection method of treatment is recommended over the method of internal medication because then it is known that the medication is continuous, which in nine cases out of ten is not the case when people are depended upon to medicate themselves. Therefore, for those interested in degeneracy the problem becomes one of consistent and continuous antisyphilitic treatment among the masses.

Diagnostic Value of Digestive Leucocytosis.—In the normal individual there is, according to P. Vansteenberghe and M. Breton (*Arch. de Med. Expér.*, July, 1905), a post-digestive leucocytosis which attains its maximum two hours after the meal, and which markedly exceeds the daily oscillations of the leucocytosis curve of the fasting individual. The increase is principally in the mononuclears. In the fasting individual the periodic daily rise is in the polynuclears. Post-digestive leucocytosis is absent in certain morbid conditions, particularly in gastric and hepatic cancer. This absence has nothing to do with the cachexia or anemia which always accompany these affections. It appears to be dependent upon an irreparable functional embarrassment of the digestive organs. This absence is not an absolute diagnostic criterion, but it has an importance equal to if not greater than the various chemical methods of diagnosis.

New Test for Diacetic Acid.—The following new test for diacetic acid in the urine is recommended by L. Lindemann (*Münch. med. Woch.*, July 18, 1905): 10 c.c. of urine are acidified with 5 drops of 30 per cent. acetic acid. Five drops of Lugol's solution are then added and the urine shaken out with chloroform. If diacetic acid is present the chloroform will remain colorless, while under normal conditions the chloroform will dissolve out free iodine. The reaction should be distinctly acid, so that in case of alkaline urines more acetic acid will be necessary. By determining the amount of iodine necessary to tinge the chloroform, the percentage of diacetic acid present may be determined roughly. The only other substances which give the reaction are the thiosulphates and the sulphites, but these never occur in the urine in sufficiently large amounts.

Levulosuria.—Levulosuria is a very rare condition and in the few cases recorded some dextrose was usually also excreted. In a case of O. Neubauer (*Münch. med. Woch.*, Aug. 8, 1905) the urine fermented with yeast, reduced Fehling's and Nylander's solutions, turned the polarized ray of light to the left, formed an osazone with phenylhydrazine and gave the specific reactions for levulose with methylphenylhydrazine and with Seliwanoff's reagent. The sugar could be isolated from the urine, and was found to be free from glucose. The symptoms were those of true diabetes, with marked nervousness. On withholding carbohydrates the urine became free from sugar. The administration of starch, glucose, galactose and lactose did not provoke glycosuria; but after levulose and cane-sugar, the levulosuria reappeared. Inulin also proved to be harmless, so that the condition was more of an alimentary levulosuria than a true diabetes. On withholding all substances containing levulose or cane-sugar, the patient improved rapidly.

A New Hemoglobinometer.—Absolutely accurate instruments for measuring the amount of coloring matter present in the blood are too complicated and expensive for the practising physician, and the simpler instruments are usually so inaccurate that no two give the same readings. A very ingenious hemoglobinometer has been devised by P. Gruetzner (*Münch. med. Woch.*, Aug. 8, 1905). The principle is the same as in the Fleischl, except that the wedge is formed by the diluted blood, which is compared with a standard color. The wedge is moved up or down until the two colors correspond accurately. Two extra slits above and below will greatly facilitate the matching of colors, and artificial light is not required.

Epidemic Simulating Influenza.—R. A. Dunn and M. H. Gordon report an epidemic (*Brit. Med. Jour.*, Aug. 26, 1905) which clinically and bacteriologically simulated influenza. The chief symptoms varied widely. Some cases appeared to be scarlet fever, some influenza, and others cerebrospinal meningitis. Bacteriological examination of the tonsillar and nasal mucus frequently revealed a non-Gram-staining diplococcus. The onset was nearly always sudden; exceptionally there was a catarrhal prodrome. Sometimes there were rigors or chilliness. The temperature was usually from 99° to 101°. Sore throat, often severe, enlarged cervical glands and stiff neck were frequent symptoms. Headache and body pains were present in most cases, and drowsiness, photophobia, nasal discharge, sneezing, lacrimation, constipation, nausea or actual vomiting were noted. Desquamation was met with occasionally, even in the absence of rash. The usual sequelæ were weakness and debility. Children were more severely attacked than adults. The cases simulating scarlet fever had the usual onset. The rash appeared within twenty-four hours. It did not invariably begin on the chest, but often along the posterior border of the sterno-mastoid, spreading rapidly over the rest of the body. It consisted of an erythematous blush and punctate spots. Usually it lasted not longer than from one to three days, and was followed by desquamation, which, as a rule, began early. The typical "strawberry" tongue was occasionally observed, and hematuria and albuminuria were present in several patients. A very discrete papular rash was sometimes noticed a week or so after the primary rash. Sudaminal rashes were also seen, and in four patients purpura was noted. Recovery

was tedious. In the cerebrospinal cases the onset varied. In some, cerebrospinal symptoms were the first noticed, whereas in others these followed on those of an influenzal or typhoid condition. Severe headache was a constant symptom and was nearly always associated with pain in the back of the neck and stiffness. Pains in the lumbar region was frequently present. Vomiting was an early and constant symptom. The temperature was very erratic, sometimes low, sometimes as high as 104° F. Discharge from the ear occurred in several patients, and a copious mucopurulent nasal discharge was nearly always present. In only a few cases has marked opisthotonos been noticed. The nervous symptoms and paralyses showed no settled type. Dilatation of one or both pupils, incontinence of urine and feces, and trophic changes in the muscles were all met with. Ten patients had Kernig's sign. Clinically the differential diagnosis of this condition from influenza, scarlet fever and cerebrospinal fever is not easy. The number of rash cases, occasionally followed by nephritis, the association of cerebrospinal symptoms, the frequency of stiff neck, and the severity of the disease among children and its mildness among adults, are strong points against influenza. The absence of Pfeiffer's bacillus is confirmative. Again the absence of much fever and the irritability of the rash appear to be points against scarlet fever, but what was far more convincing was the association of the different types of the disease in the same invaded household. Evidence against cerebrospinal fever was the mildness of the epidemic, the comparatively small number of cases with typical cerebrospinal symptoms, the infrequency of the two concomitant rashes, purpura and herpes, and the fact that no organism having all the characteristics of the meningococcus could be obtained. The organism observed in twenty-two cases of twenty-four cases was a Gram-negative coccus, growing freely upon ordinary agar at 37° C., and gelatin at 20° C., and producing an alkaline reaction when cultivated in leucolitmus fluid, containing either glucose, gelactose, maltose, or saccharose. It would seem that this organism is closely allied to or identical with *Micrococcus catarrhalis*.

Asthma.—SAMUEL KOHN, presenting a paper upon this subject (*Med. Rec.*, Aug. 26, 1905), says the theories which to-day are most generally accepted as the direct anatomical cause of the asthmatic paroxysms are the bronchospastic, combined with the vasomotor paretic. Experience has proven that the disease occurs principally in persons of neurotic temperament, the predisposition being frequently hereditary. The essential etiological factor is probably some organic lesion of the nerve centers of the medulla, but this has not yet been demonstrated. The causes producing the first outbreak will be found in irritations of peripheral nerve endings of the vagus and other nerves connected with it. Since, no matter where the irritations are found, be they in nose, throat, bronchi, skin, viscera, circulatory media or brain, the paroxysms induced are so uniform and characteristic that the consensus of opinion entitles asthma to be considered a disease and not a symptom. The anatomical change responsible for the respiratory difficulty is dilatation of the alveoli of the lung. During an attack this grows more marked, the more strenuous the patient's inspiratory efforts become. The alveolar walls in time lose their elasticity and emphysema may follow, which, when this is the case, often moderates or entirely abolishes the attacks. The treatment is divided roughly into climatic, hygienic, symptomatic, gymnastic, psychic, hydrotherapeutic, medicinal, operative and institutional.

Abuse of Bromides in Epilepsy.—For a number of years the bromides have been losing favor in the treatment of epilepsy. After observations upon nearly two thousand cases W. P. SPRATLING (*Med. Rec.*, Sept. 2, 1905) concludes that the bromides, as ordinarily employed, do more harm than good. He claims that he has not yet seen an epileptic cured by bromides alone. A short time ago the amount of the drug that was being used at the Craig Colony was reduced nearly one-half. The result was a considerable temporary increase in the number of attacks, but these shortly fell to their normal number, most of the patients showing mental and physical improvement while free from bromism. The chief difficulty in administering bromides lies in the inability to prescribe the precise individual dose the patient's condition demands. In no case should it be lost sight of that there is a point of physiological toleration and of therapeutic usefulness which should not be exceeded. Only exceptionally does it ever become necessary to push the drug to the point of inducing bromic acne, whereas to cause bromic dementia is an inexcusable blunder. Loss of memory is frequently seen from blunting of the intellectual faculties. The physiological effects of these salts are generally deleterious if continued, resulting in depression, anemia, emaciation, and feebleness, facts which sufficiently show their little use in epilepsy. Abandonment of bromides, and the use of other harmless depressants instead, and a general recognition of the principle of first treating the individual instead of the symptom would soon more clearly show their very limited value.

Rats in Relation to Plague.—A causal relation between rats and plague has been recognized since the earliest time. In a study of the habits of rats BRUCE SKINNER makes some interesting observations (*Brit. Med. Jour.*, Aug. 26, 1905). It is inferred that the rat, the indigenous species of the plague areas, causes or spreads this disease. There are certain seasons when rats betake themselves to houses. In the cold countries this occurs during the winter months, whereas in the warmer regions shelter is sought during the rainy season. Reference to the literature upon plague shows that the height of the epidemic is usually attained at the time when rats should be in the fields, and the minimum is reached when they take shelter from the rain. He suggests as borne out by the examination of the habits of rats, so far as they are known, that though he suffers from plague, he is not the source of the disease. Were he the source, the epidemic should be most severe when the rat is in most intimate contact with the human population. Again there is nothing to show that the destruction of rats reduces plague incidence. But inasmuch as rats suffer from plague, which some have suggested is conveyed from them to man by the flea peculiar to *M. rattus*, many may consider it politic to exclude rats from dwellings. Rats avoid lime, for it burns their feet. Therefore the free use of unslaked lime about the premises, and particularly along their runways to water, will effectually keep them away. The intelligence, assisted by the acute sense of smell possessed by rats, is so keen that it is very likely that they would not return even in the rains to plague-infected houses if the cause of that disease were inherent in the dwellings. The rat, however, does return at that season and remains throughout the rains; so it may be allowed that he cannot be responsible for the recrudescence which occurs after the rains, and which must be due to some other cause apart from rats coming into play after a period of quiescence.

Syphilis of the Third Generation.—In presenting a digest of this important subject, C. F. MARSHALL con-

cludes (*Lancet*, Aug. 26, 1905) that the degenerative or dystrophic effects of syphilis are transmissible to the third generation or possibly further, only to die out with eventual sterility. Although difficult to prove, the transmission of virulent hereditary syphilis to the next generation is scientifically possible, the question depending chiefly on the factors of time and treatment. Hereditary syphilis may not become manifest until the procreative age, hence a hereditary syphilitic genitor in a virulent state might transmit the disease in a virulent form to the offspring. The reason why such cases are rare is the fact that a small proportion of cases marry while suffering from hereditary syphilis in virulent form. At the time of marriage the disease is usually attenuated by time and also by treatment. Reinfection of a hereditarily syphilitic genitor increases the virulence of the disease and its fatal effects on the offspring. The two chief obstacles to actual proof of transmission to the third generation are the possible reinfection of the second generation and the possible intervention of another syphilitic genitor.

Contracted Muscles of Infantile Paralysis.—The usual theory accepted as accounting for the production of talipes is that, owing to the unbalanced state of the muscles, the stronger have been in a condition of overaction, have overpowered their weaker opponents, and by gradually approximating their own points of attachment have become permanently shortened. F. R. Fisher contends (*Lancet*, Aug. 26, 1905) that this is certainly inaccurate in one respect, the contraction of the muscles precedes the drawing together of their points of attachment, the latter being not the cause but the result of contraction with which the shortening of the muscle is coincident. It is also extremely doubtful if a muscle will acquire from overaction a condition of permanent contraction. The term "contracted muscle" by no means conveys a correct idea of the muscular lesion. Contraction is a normal attribute of muscular fiber; here, a distinct abnormality obtains, consisting in the deprivation of the tissues' ability to relax; "intractile muscle" better defines the state of inextensibility, which, as the main feature, should be especially considered. In theorizing on the development of paralytic talipes writers have hitherto overlooked the point that muscular intractibility is as distinctly a loss of natural function as is muscular paralysis; in the one ability to relax is reduced, and in the other power of contraction is lowered. It is known that the loss of contractile power is due to the degree of destruction of the motor cells in the anterior cornua; it is possible that from the loss of a controlling influence naturally exercised by the same central structures arises the development of intractility. In considering the obscure changes consequent upon poliomyelitis the most difficult task is to throw light upon those cases in which the muscles, apparently deprived of contractile tissues, are able to generate very evident distortions. Voluntary movement can hardly account for the phenomena, nor does it seem possible that reflex action can be existent. The only solution which suggests itself is that some feeble stimulus may be issued from the cord, erratic messages from a directing center which has been thrown into a state of hopeless confusion. Be this as it may, the development of paralytic talipes probably depends entirely upon neuropathic influence.

Hiccough, Its Physiology, Pathology and Treatment.—A comprehensive and exhaustive essay on this subject, as gathered from a study of an enormous bibliography, is furnished by J. Bertier (*Gaz. des Hôpitaux*, July 8, 1905). Hiccough is defined as a sudden contraction of the diaphragm, causing a sudden motion of the abdominal and thoracic walls, and accompanied by a coarse and inarticulate sound caused by the closing and sonorous vibration of the lips of the glottis. The diaphragmatic spasm is but one of the factors of the syndrome which comprises other associated phenomena, glottic and gastric. There is a double nervous control of the act of hiccoughing: through the phrenic the diaphragm is made to contract; by means of the vago-spinal nerves there are brought about the closure of the glottis, the contraction of the stomach and the relaxation of the pyleric sphincter. A center co-ordinating these movements is supposed to exist in the neighborhood of the vital center, and the center of vomiting. Numerous centripetal paths bring the hiccough center into relation with numerous peripheral sources of irritation. Clinically these irritations are found in the domain of the pneumogastric (foreign bodies in the lung, pleurisies, affections of the liver, stomach, intestines, peritoneum, esoplagus, pharynx), of other visceral nerves (pregnancy, diseases of the prostate, kidneys, bladder, uterus), or the nerves of general sensibility (exposure to cold). Besides these reflex causes of hiccough there are direct central forms of stimulation of the center controlling this act. Thus it may be due to imagination (hysteria, imitiation, epidemicity), to toxic products (uremia, tobacco, alcohol), and to anoxemia (agony, severe hemorrhage). The irritation may affect the centrifugal limb of the reflex arc (luxations of the cervical vertebræ, tumor of the mediastinum, aneurism of the aorta, pericarditis, diaphragmatic pleurisy, wounds of the diaphragm, splenomegaly and perisplenitis). Hiccough is sometimes preceded by a sort of aura, a sense of epigastric tension. Sometimes diaphragmatic spasm is so violent as to cause a synchronous raising of the shoulders, limbs and trunk, rapidly producing fatigue if the attack is prolonged. In other cases the glottic element is the principal one, producing an intense sound like the bark of a dog (a case being reported in which the sound was heard at a distance of three-quarters of a mile). Ordinarily the spasms have a rate of 6 to 15 per minute, but in severe cases there are as many as 60 to 80. They have already been observed in one case synchronous with the cardiac pulsations. Generally hiccough stops during the night; sometimes it persists. In severe cases hiccough causes a considerable amount of functional disturbance: anxious respiration, cyanosis, difficulty of deglutition and serious impairment of nutrition. In the course of diaphragmatic pleurisy it causes intense pain and insomnia. Speech is sometimes impossible. At times hiccough relieves the distress of dyspeptics by causing eructation of gas. Ordinary attacks of dyspeptic hiccough last a few minutes; those due to inflammation of the pleura or peritoneum may persist for hours or days. Certain hysterical cases have lasted for twenty to thirty years. The following clinical forms are enumerated: A. Reflex. (1) Diseases of the stomach; liquids too hot or too cold, unchewed food, carbonated liquids, indigestion; it may be a troublesome accompaniment of cancer, ulcer and hyperchlorhydria. In nurslings it indicates an overloaded stomach. (2) Affections of the pharynx, aphthæ, abscess, esophageal spasm due to benign or malignant stricture. (3) Diseases of the peritoneum; every time the peritoneum is irritated hiccough is apt to arise; it is less constant in the localized varieties. (4) Intestinal disorders, including dysentery, lumbricoides. (5) Diseases of the liver. (6) Diseases of the spleen, most frequently hypertrophy. (7) Genito-urinary disorders, above all; affections of the bladder. (8) Uterine disorders. (9) Pregnancy, in this case due to toxemia, like vomiting.

(10) Abdominal wounds. (11) Diseases of the respiratory organs, particularly diaphragmatic pleurisy and pneumonia. In the former it is the source of agonizing pain. It is seen in subphrenic abscess. In pneumonia it occurs on the fifth or sixth day and is ordinarily very violent. (12) Mediastinal compression. (13) Pericarditis, in which it is a bad symptom. (14) Exposure to cold. (15) Affections of the peripheral nerves, as in sciatica. (16) Spinal disorders, as displacement of cervical vertebrae. B. Hiccough of central origin. (1) Hysteria. Boerhaave reported an epidemic in Haarlem. The hysterical cases may be easily differentiated from those of symptomatic origin. In the former the glottic phenomenon is the most marked, and the sound produced is intense. In these cases the prognosis is good, as regards life, but interference with sleep and nutrition may cause a general debility. (2) Emotion. Seen in neuropathic subjects, transitory, and sometimes occurring in the course of laughing or crying, when it is really a sobbing. (3) Chorea and epilepsy. (4) Intoxications; lead colic, nicotinism, alcoholism. (5) Auto-intoxications, as uremia. (6) Infections. The hiccough of typhoid fever has been most studied. It appears late, most frequently in some epidemics, at first is intermittent and then incessant, sometimes accompanied by biliary vomiting, preventing sleep, interfering with speech and swallowing, and disappearing at the end of a few days. It has been attributed to various causes: abdominal distention, splenic hypertrophy, ulceration of esophagus, and most recently to the action of the typhoid toxins upon the bulbar center. Hiccough is also seen in scarlatina, scurvy, yellow fever, cholera and hydrophobia. (7) Cachexias. (8) Hemorrhages. (9) Death agony. (10) Bulbar diseases. (11) Cerebral affections. In diagnosis hoccough may be easily distinguished from pharyngeal and laryngeal spasms, yawning and aerophagia. In treatment the following have been used: A. Medicinal: Injection of morphine; valerianate of zinc, belladonna and camphor, belladonna plaster over the phrenics, bromides and belladonna, opium and chloroform, inhalations of chloroform, ether injection of pilocarpine, infusions of peppermint, musk, theriac and belladonna, cocaine and belladonna. B. Non-medicinal. (1) Peripheral irritation, causing inhibition of the motor phenomena. For this purpose the following have been used: epigastric acupuncture, tickling of the pharynx, compression of the auditory meati with extension of the head, actual cautery, chloroform compresses on the epigastrium, epigastric ether pulverizations, raising of the hyoid bone, drinking slowly while pinching the nose, sinipisms, vesicatories, catheterization of the esophagus, tetanizing galvanization of the esophagus, pharyngeal irrigations with cold water, compression of the fists, compression of the cubital region, compression of the ball of the thumb with the little finger, a little salt or sugar placed on the tongue, and thrusting the tongue systematically out of the mouth. (2) Increasing the oxygenation of the blood by means of 40 to 50 rapid and deep respirations. (3) Direct action on the phrenics; compression, galvanism, vesicatories. (4) Magnetism, applied to lower part of thorax. (5) Mechanical interference with movements of diaphragms; forcible manual compression of the diaphragm, forced expiration or inspiration, abdominal bandage, and suspension of respiration. (6) Cold baths and wet packs. (7) Suggestion in all its forms; most of the above act in this way. The following are the main points in the treatment. If the case is due to hysteria, remove the provoking cause, give preparations of valerian, employ the mechanical methods, and if all else fails, resort to suggestion or the hypnotic sleep. (A trip to Lourdes has cured one bad case.) In the symptomatic forms, try to remove the cause. Combat the underlying neuropathic element; diminish the bulbar excitability by means of the various mechanical inhibitory methods; if in spite of these the hiccough persists, use morphine, and if nutrition is interfered with gavage.

PATHOLOGY AND BACTERIOLOGY.

Recurring Phlebitis of Obscure Origin.—U. B. BRIGGS (*Bull. Johns Hop. Hosp.*, June, 1905) reports a series of cases of recurring phlebitis which clinically are characterized by a progressive and relapsing course which are obscure alike in their pathology and etiology. Their clinical picture is so consistent and their cause so obscure that the author considers them to be instances of idiopathic recurrent thrombophlebitis. The cases seem, after the most careful consideration, not to be dependent upon a gouty, septic or traumatic origin. The author makes the following etiological suggestions: We are familiar with the predilection of thrombotic processes within the arteries for such portions of the vessel wall as are affected by arteriosclerosis. The acute and inflammatory affections of the endocardium are specially prone to attack valves already damaged by preference over those with unaltered endothelial coverings. We also know that phlebosclerosis is a condition quite analogous anatomically to arteriocapillary fibrosis, that it is frequently associated with the latter condition, may occur very early in life, and has hitherto attracted rather a curious interest, as having no particular significance. May it not be that the cases of venous thrombosis with which we are dealing depend for their immediate and localizing cause on such sclerotic changes in the walls of the veins? If a cachexia may determine the production of a thrombus within an artery, it seems very easy to believe that with the much slower current of the blood within the veins, an extreme or even beginning phlebosclerotic change might determine the deposition of a fibrin coagulum from the blood stream. Sclerotic alterations of the vein walls are often observed to progress by fits and starts, at times with great rapidity, and then to remain in a stationary condition for years. It is suggested that such a rapidly progressive stage of the fibrosis, if associated with a small, even at first a purely partial thrombosis, might produce just such a series of phenomena as are shown by the present group of cases.

Amount of Katalytic Ferment in Blood.—The amount of katalytic ferment present in the blood can be best determined according to A. SOLLES and M. OPPENHEIM (*Virchow's Archiv*, Vol. 180, No. 2), by adding hydrogen peroxide in excess and then retitrating the undecomposed amount of peroxide by means of permanganate or thiosulphate. It was found that normal human blood will decompose a constant amount of peroxide, namely, 23 grams to the liter. Lowering or raising the temperature, and the addition of various poisons, will materially diminish the power of decomposition. In disease there may also be a marked diminution, though constant factors could not be determined. The blood of amphibia can only break up the peroxide very slightly, and in the blood of animals living altogether in the water this property is absent almost entirely.

Relation of Chlorides in Urine to Gastric Function.—The amount of chlorides present in the urine during different parts of the day has been carefully investigated by A. MÜLLER and P. SAXL (*Zcitsch. f. klin. Med.*, Vol. 56, Nos. 5 and 6). They found that the

effect of meals is undeniable, for directly after there is a rise, followed by a fall and then a second rise. These fluctuations are only moderate after breakfast, and during night there is usually a marked diminution. The excretion of nitrogenous matter runs a curve very similar to that of the chlorides. The first rise is due to the absorption of chlorides, the depression to the fact that the salt in the blood is being used up for the hydrochloric acid of the gastric juice, and the final rise is accounted for by the absorption from the intestines. The acidity of the urine varies only slightly, but frequently the urine is slightly less acid after the chief meal of the day. Other interesting details of the chloride excretion are: If a large amount of salt is taken with the meal the initial rise will not appear, probably because the salt interferes with the absorption from the stomach. The depression is more or less marked if the secretion of gastric juice is excessive or diminished. If there is complete absence of acid in the test-meal the depression will often be absent altogether, and a very low curve will be obtained if bicarbonate of soda is taken after meals, since more acid will be secreted to neutralize this. Hydrochloric acid, on the other hand, will flatten the curve.

Experimental Researches on Adrenalin.—Two of the best known properties of adrenalin when introduced into the body are to bring about a glycosuria and to reduce the temperature. B. Wolownik-Charkow (*Virchow's Archiv*, Vol. 180, No. 2) has proven that the glycosuria is due to an escape of excessive amounts of glycogen from the liver, for the liver in rabbits treated with a single, large dose will always be found to contain less glycogen than that of a control animal. If rabbits are fed upon levulose, glucose instead of levulose will appear in the urine, since the leoulose is first converted into glycogen in the liver. The adrenalin glycosuria may be inhibited by fever, probably because the germs which cause the fever bring about more active sugar metabolism. If spermin be injected with the adrenalin, the glycosuria will be less marked for unknown reasons. A peculiar and not investigated property of adrenalin is that the temperature of the animals falls 1.5 to 2 degrees about thirty minutes after they have been injected; after six to seven hours normal temperature is again reached. If the animals be rendered febrile by infecting with bacteria, this depression will not be so marked as in the artificial fever induced by brain injury. This peculiarity could only be explained by assuming that adrenalin has a direct influence upon the heat-centers. The nitrogen metabolism was not affected in any manner.

Suprarenal Hemorrhage of the New-Born.—S. Oberndorfer (*Wien. klin.-therap. Woch.*, June 18, 1905) states that common pathological changes found in the suprarenals are hemorrhage, which converts the medulla of the organ into a pulpy mass, and embolism of the suprarenal artery, whereby the entire organ is destoyed. Occasionally, one or both organs will be converted into large bluish tumors, whose contents are fluid blood. This is especially common in the newly-born, and many believe that the motions necessary for artificial respiration are the real cause. In a number of cases observed by the author, however, artificial respiration was not resorted to, and it is likely that severe labor, particularly if the child is in the breech position, will furnish the necessary trauma to rupture the friable suprarenal tissue and thus give rise to a hematoma. If both organs are affected the symptoms are those of Addison's disease, and death rapidly sets in.

PHYSIOLOGY.

The Origin of the Sugar of Pancreatic Diabetes.—A burning question in physiology to-day, according to E. Pflüger (*Pflüger's Archiv*, May 15, 1905), is whether the large amounts of sugar excreted in pancreatic diabetes are derived from fat or albumen, or from both. In order to answer this question a careful investigation was made by the author. Dogs were fed upon large quantities of proteid food, which contained neither carbohydrate nor fat. Such food was found to be codfish, which in winter and spring contains no glycogen nor glucosides, and only traces of fat. With such a diet pancreas-free dogs excrete for months such large quantities of sugar (amounting to 30 per cent. of the body-weight) that the sugar cannot possibly be derived from the glycogen or other form of carbohydrate stored up in the body. The excreted sugar, moreover, weighs more than the proteid substance of the body. The sugar, therefore, is derived either from the fat of the organism, or from its proteid and that of the food. The immense amount of sugar, however, did not exceed that which might theoretically be derived from the fat stored in the body. In spite of the abundant albuminous diet the dogs emaciated to the very bones, as if they had been starved, and only the brain and heart remained intact. One marked difference between these and dogs that were actually starved is that in the former the fat alone mostly disappears. A second difference is that in the diabetic animal at death the weight of the liver exceeds that of the liver of the healthy animal. The enormously large diabetic liver has the normal chemical composition, and thus behaves exceptionally like the brain and heart of starved animals. This is explained by the fact that the liver by continuous effort in its struggle for existence with other organs, particularly for food, maintains its functional capacity. The most plausible explanation of diabetes is that the formation of sugar is the work of the cell-substance of the liver, by which not only glycogen, but also fat, is transformed into sugar. Every stimulation of the liver cell, either by innervation, or by carbon dioxide, phloridzin, adrenalin, or other poison, increases the production of sugar. If the organism is fed on large quantities of proteid, then the liver must naturally work over many nitrogenous derivatives of albumin. The more proteid is thus offered to it, the more its cells are stimulated, and thus its sugar-forming function is increased. The administration of ammonium carbonate similarly stimulates the liver cells. Besides, the administration of large amounts of proteid increases the entire bulk of the liver cells. It may thus be understood how in different individuals very different quantitative relations exist between proteid metabolism and sugar-formation, and why, at the lowest ebb of albuminous metabolism, any poison or other irritation acts as a stimulus of the liver cells, increasing the sugar-production, without an accompanying rise in the metabolism of proteids.

Effects on the Rate of Transformation of Glycogen into Dextrose.—It was found by C. H. Neilson and O. P. Terry (*Amer. Jour. Physiol.*, August 1, 1905) that by increasing the dextrose, which is a product of the decomposition of glycogen, the rate of this decomposition is retarded. This agrees with the facts that the products of a chemical reaction retard that action, and that when the blood is rich in sugar, there is a decreased transformation of the glycogen into dextrose. It is also seen that calcium chloride has a retarding action, and sodium citrate an accelerating action, on the breaking up of glycogen. This agrees with the fact that such salts as sodium citrate, acetate, etc., are used as therapeutic agents to increase elimination, probably by stimu-

lating the cell-substance and its enzymes, possibly by making the cell membranes more permeable. It also agrees with the fact that calcium chloride has a retarding action in elimination, especialy in salivary secretion and inhibiting the secretion of sugar in phloridzin diabetes, as shown by O. H. Brown and M. H. Fisher, working independently. This latter fact may possibly be explained by the calcium chloride lessening the permeability of the kidney membranes; but possibly by retarding or inhibiting the transformation of the liver glycogen and the muscle glycogen into dextrose.

The Properties of Thalassin.—In the tentacles of the sea anemone, CHARLES RICHET (*Pflüger's Archiv*, June 17, 1905) has discovered a powerful poison, which he terms thalassin. This is soluble in 95 per cent. alcohol, is not destroyed by heat, and is widely distributed among marine animals. In doses of one-thousandth of a milligram per kilogram of body-weight, injected into dogs, it causes itching, biting and sneezing, and a congestion of the mouth and conjunctiva. A larger dose causes stoppage of the heart's action. This poison is an antitoxin for another poison which is also found in the tentacles of the sea anemone. This animal may be said to possess a toxin having two components, namely, congestion, whose injection into an animal makes the latter more susceptible to its action, a property which is called anaphylaxis; and thalassin, whose injection into an animal makes the latter less susceptible to the action of congestion. This property is called prophylaxis.

The Immediate Effect of the Accelerans and the Vagus upon Automatically Contracting Strips of Heart Muscle.—That the impulse conducted along the heart from base to apex is carried by the muscular substance itself is the thesis maintained by H. E. HERING (*Pflüger's Archiv*, May 31, 1905). Independently contracting strips of mammalian heart-muscle are independently of one another affected by the centrifugal heart-nerves, not only as regards their strength of contraction, but also as regards its frequency. The extra cardial centrifugal heart-nerves do not conduct the excitatory impulse from auricles to ventricles, if the muscular connection between these has been severed. Changes in the strength of auricular contraction are not followed by corresponding changes in the strength of the ventricular contractions, even when the former have been brought about through the influence of the nerves.

The Specificity of the Digestive Ferments.—It has been found by K. KIESEL (*Pflüger's Archiv*, May 31, 1905) that the proteolytic and rennetic ferments of the dog and cow are specific in their action on the casein of the animal furnishing the ferment, with the exception of the trypsin and pancreatic rennin of the dog. The latter two have a greater affinity for the casein of the cow than that of the dog. These results show that the ferments and the casein of the various species of animals have at least a different molecular structure. The differences between the various kinds of casein have for a long time been recognized, but until now the specificity of only the rennetic ferment has been known. The specificity of the gastric ferments with respect to casein furnishes another argument in favor of the natural feeding of infants, and explains the difficulty in the digestion of cow's milk by young infants.

OBSTETRICS AND GYNECOLOGY.

Spinal Stovainization in Gynecology.—The fatal accidents, the discomfort after the administration, the necessity of skilled assistants with a general anesthetic have led many surgeons to frequently use a local anesthetic. In spinal cocainization the gynecological region participates in the anesthesia as well as the lower limbs, the inguinal and perineal regions, although this form of anesthetic for laparotomies has been given up because of the variable height of anesthesia, the difficulty of holding the intestinal pads in place and the necessity of using maximum doses. Incited by the recent communications of Dukelus and Chaput on stovaine, and because of its comparatively innocuous properties, as proved both by laboratory and clinical experiments, T. A. DALERIS (*La Gynécologie*, Feb., 1905) has used spinal stovainization in gynecological and obstetrical operations. At the time of anesthesia there was absence of all reaction of vomiting, sweats, pallor of the face, increase in pulse-rate, all of which are phenomena observed with cocaine. Five cgs. can be safely given as a maximum dose for gynecological operations of average duration. In general surgery stavaine has all the advantages and few of the disadvantages of cocaine. In long gynecological operations 7 to 8 cgs. may be used, which amount is within the domain of perfect safety. A modified Tupper's needle may be used with a beveled end and an opening on the side so that the injection may be given an upward direction. Using the method of Guinard, the cerebrospinal fluid is drawn into the barrel of the syringe and the mixture, new opalescent, is injected into the spinal canal. With 7 to 8 cgs. the anesthetic always goes above the pubes, at times to the mammary line, in the majority of cases between the xiphoid and the umbilicus, but the genital region is always perfectly insensible. The anesthetization goes rapidly to the lower limbs. After ten to fifteen minutes it attains its maximum degree, at which time the perineum and anus are anesthetized. The insensibility of the uterus comes sooner than that of the skin at the same level, a fact especially noticeable in obstetrics during labor where the contractions are scarcely perceived by the patient after three or four minutes, although in reality they have become more energetic. With a dose of 3 cgs. the anesthesia lasts forty minutes, and then gradually decreases. Ten minutes after the injection there is noticed a complete relaxation of the perineal muscles, the levator ani and the external sphincter. The anus opens spontaneously, a fact to be considered to insure protection of the operative field. This can be done by a preliminary tampon in the rectum. Urine is not expelled except by mechanical pressure. The uterine musculature contracts energetically in the gravid state. The oxytoxic power of stavaine occurs either during labor or during pregnancy. Pregnancy is a contraindication to this use of stovaine, as abortion or premature labor is apt to result. Contracting of the muscle in the non-gravid uterus is also marked. A case is on record in which a Hegar bougie was forcibly expelled from the uterus. This awakened contractibility of the uterus may prove of service which alone will be determined by further experience. Furthermore, the contraction of a subinvoluted uterus is made more complete and hemorrhage is lessened. The subjective phenomena observed at the time of the anesthesia have been almost nil. On the other hand, in 12 cases out of the 27, quite serious symptoms followed some days after the spinal injection, such as severe headache, occular and spinal pains, vertigo, nausea and vomiting. On the average the symptoms came two days after the injection, at times the spinal pain came on at the end of twelve hours. Generally, by the fourth to the fifth day, the symptoms had disappeared, but in four cases they lasted until the tenth and twelfth days, hindering somewhat alimentation. In the treat-

ment of these after-effects it was found that quinine was best for the headache and spinal pain. In six cases good results were obtained by spinal puncture and the withdrawal of 10 c.c. of the cerebrospinal fluid. In conclusion, the writer believes that spinal stovainization has its place in a number of gynecological and obstetrical operations, in spite of the postoperative symptoms mentioned. But, on the whole, none of these symptoms were of a character sufficiently grave to condemn its use.

Can the Bossi Method be Recommended to the Practitoner?—Based on extensive observations and personal experience, Dührssen (*Archiv f. Gyne.*, Vol. 75, No. 2) returns a negative answer, and sharply criticizes the cases reported from Leopold's clinic. He claims that many children who died during birth might have been saved if the vaginal Cæsarean section had been employed instead. Only an expert obstetrician should venture to employ the instrument, as the severe cervical tears and the necessity of having to apply a high forceps often present severe difficulties. The modern specialist is also perfectly familiar with vaginal Cæsarean section, and this permits the delivery of the child within a few minutes even where the cervix is closed and rigid, while the application and use of the Bossi instrument requires considerable time. Where the cervix has begun to dilate, the elastic bags give the same result with much less danger than the dilator. Dührssen reports two more cases of vaginal section which ended favorably for both mother and child. The one was an eclampsia, the other a narrow pelvis with an overdue child and a rigid cervix. In the latter class of cases the vaginal Cæsarean section has the advantage of relaxing the tension of the lower uterine segment and thus diminishing the risks attendant upon a version.

Toxemia of Pregnancy.—Following up a former important contribution upon this subject, W. S. Stone (*Med. Rec.*, Aug. 19, 1905) reports seven additional cases with urinary determinations. From these studies he concludes that the theory which places the pernicious vomiting of pregnancy upon a hysterical or reflex basis is without foundation. The mental symptoms usually stamped hysterical are essentially cerebral manifestations of disordered hepatic function, as evidenced by the urinary changes. Whereas the lesions presented in pernicious vomiting of pregnancy and eclampsia are in the majority of cases different. Yet there is clinical and pathological evidence that they are closely related. Symptoms of either may be present without change in the urine so far as ordinary tests show, but the persistent presence of even a trace of albumin, especially if accompanied by casts, and a persistent increase of indican demand a more complete examination, which seems best accomplished by a determination of the total nitrogen and its partitions. He recommends the incorporation of the test for indican in ordainary clinical tests because errors of diet and intestinal intoxications seem to be important contributing factors in both of these conditions.

Ulcer of the Stomach and Pregnancy.—Mild dyspeptic troubles and subacute gastritis are of frequent occurrence during pregnancy, but ulceration is rare. M. Le Play (*Annal. de Gynecol. et d'Obstet.*, May, 1905) describes the case of a woman twenty-seven years old, six months pregnant, who had vomited almost continuously for over three months. Her stomach was dilated and very tender. Later she passed large quantities of blood from the bowels and had several attacks of hematemesis in rapid succession. She rapidly became very weak and died after presenting a clinical picture resembling progressive pernicious anemia. At autopsy the larger curvature of the stomach showed an ulcer 12 cm. x 9 cm., with raised margins. The base extended to the peritoneum, but there was no perforation. There was marked sclerosis of all the adjacent vessels. Owing to this condition of the blood-vessels, the nutrition of adjacent areas suffered and had undergone degeneration, offering but feeble resistance to the action of the acids of the gastric secretion. The writer considers that pregnancy by favoring sclerotic changes in the blood-vessels would thus predispose to the formation of a gastric ulcer.

Malignant Embryoma of the Ovary.—Two cases of this rare form of ovarian tumor have been reported by H. T. Hicks and J. H. Targett (*Jour. Obstet. and Gyn. Brit. Emp.*, Aug. 1905). One case occurred in a girl fourteen years old who entered the hospital with a high temperature, rapid pulse, and a rigid and tender abdomen. A large tumor rose from the pelvis and extended to the umbilicus. After operation the patient remained well for three months, when she returned to the hospital suffering from ascites and rapid wasting. At a second operation a large quantity of serous fluid was evacuated, sessile and pedunculated growths studded the intestines and omentum and a large mass extended deeply into the pelvic cavity. After paracentesis had been performed five times the patient died seven months after the first operation. Miscroscopical examination of sections of primary and secondary growths showed the tumors to be composed of tubules and cysts, nodules of cartilage and bone, epithelial pearls and a groundwork of fibrous, muscular and fatty tissues. The second case occurred in a girl, six years old, who died two months after operation. The manifestations of recurrence and the microscopic findings were similar to those of the first case. These rare tumors usually occur in young adults, but may be met with in childhood. They may attain a large size, are usually pedunculated and devoid of adhesions unless the pedicle has become twisted. Secondary growths are frequently restricted to the peritoneum, they may be of the same composite structure as the primary growth or be wholly composed of sarcomatous elements. Pain and ascites are constant symptoms. Ovarian tumors exhibiting an irregular disposition of embryonic elements are very liable to be malignant.

Cystoscopy of the Female Bladder.—There has been much advance toward the perfection of cystoscopic methods of late, but after testing many instruments L. Luys (*Annales de Gynecol et d'Obstet.*, May, 1905) advises the use of the simple endoscopic tube which has many advantages over reflecting or refracting cystoscopes. In the simple tube vision is direct and the parts are seen in normal position under natural conditions since the condition of the bladder walls is not altered by distention with water. The distention alters the color of the mucosa and interferes with a proper examination of inflamed vessels or areas. In many cases of cystitis it is impossible to distend the bladder sufficiently to permit of the use of the prism cystoscope. With direct vision the difficulties met with in cases of pyuria and hematuria are not present to the same extent as when the refracting cystoscope is used. This direct method also allows of the direct application of various remedial agents to the mucosa of the bladder, which is often a distinct advantage. The writer finds that catheterization of the ureters can be performed with more certainty and with less danger of introducing

bacteria from an already infected bladder by using the simple endoscopic tube.

Spontaneous Amputation of the Tube.—Among 1041 laparotomies performed in the clinic of Pestalogga, Florence, since 1894, there were two cases of spontaneous amputation of the tube. M. GUICCIARDI (*La Gynecol.*, May, 1905) describes these two cases together with a third that came under his observation. In the first case a hysterectomy was performed for multiple fibroids. The right appendages were normal, the uterine end of the left tube was normal, but ended in a rounded stump in which there was no trace of an opening. The missing portion of the tube was not found. In the second case amputation of the tube followed torsion of the pedicle of an ovarian tumor. In the third case the abdomen was opened for the removal of a cystic tumor felt through the posterior vaginal fornix. The tumor proved to be a sactosalpinx which had become inverted and spontaneously amputated from the uterus and adherent to the anterior layer of the broad ligament.

Uterine Metastasis in Cancer of the Stomach.—Metastatic deposits in the uterus in cases of primary involvement of other organs is very uncommon. A. COUVELAIRE (*Annal. de Gynecol. et d'Obstet.*, May, 1905) reports the case of a primipara thirty-one years old who was seized with severe vomiting and pain in the stomach when ten weeks pregnant. A hard tumor in the epigastrium led to the diagnosis of cancer of the stomach. There was a progressive cachexia, ascites and edema of the limbs and abdominal wall being noted in the eight month. A vaginal examination 301 days after cessation of menstruation, revealed an induration of the fornices, cervix and lower uterine segment. A condition which was not present a month previous. A dead child was removed by Cæsarean section and the uterus removed. The patient died fifty-one days after operation. The autopsy showed a general adhesive peritonitis with malagnant growths in the stomach, intestines, uterus and vagina.

The Appendix and Pelvic Disease.—R. PETERSON (*Am. Jour. Obstet.*, Aug., 1905) in a series of 285 cases in which the abdomen was opened for other purposes, removed the appendix regardless of its apparent condition. The microscope showed about 50 per cent. to be normal. Inasmuch as many appendices which looked diseased were shown microscopically to be normal, and vice versa, the writer concludes that when the abdomen is opened for any reason, it is wise to remove the appendix in all cases in which a prolongation of the operation would not be too profound a shock. When there is disease enough in the pelvis to demand operation, there is reason to expect that the appendix may be diseased also, which, if left behind, may prove a subsequent source of suffering to the patient.

Menstrual Urticaria.—D. J. M. MILLER (*Med. Rec.*, May 13, 1905) epitomizes the literature of this condition and describes its occurrence in a girl of fifteen years, who menstruates regularly, and whose attacks of urticaria make their appearance seven or eight days before and cease two to three days before each period. Occasionally the urticaria persists until the flow begins, free from attacks and she is perfectly healthy in other rarely during the first day or two of its course. During the intervals between the periods the patient is quite respects. The urticaria itself is of the ordinary type.

Tuberculosis and Pregnancy.—According to the statistics of Fellner, pregnancy tends to increase the susceptibility of the individual to tuberculosis. Cases occurring during the pregnant state are severe, with a marked tendency to laryngeal involvement. The pregnancy is as a rule not interrupted, but it is not uncommon for an advanced case of phthisis to be delivered at full term, the child dying in a few days and the mother in a few days or weeks. G. E. MALSBARY (*Am. Jour. Obstet.*, July, 1905) has been led to consider that tuberculosis in itself predisposes to pregnancy. In view of the special susceptibility, pregnant women should be protected from tuberculosis as from other infectious diseases. The habit prevalent among pregnant women of going into retirement, should not be tolerated, if such retirement precludes hygienic surroundings, pure air and sunlight. Fresh air, exercise and proper diet combined with the use of tuberculin and creosote constitute the essentials of treatment. The desirability of artificial interruptions of pregnancy is problematic in these cases, especially when the objective symptoms do not show progression of the disease. As far as pulmonary tuberculosis is concerned, the operation is of no especial benefit.

Lacerations of the Cervix Uteri.—ARTHUR H. GARDNER, in an article embodying an exhaustive résumé of the opinions held upon this subject by the most distinguished obstreticians (*Med. Rec.*, Aug. 26, 1905) draws some conclusions. Many ills are the result of unrepaired lacerations of the cervix. These tears may be lessened, both in frequency and extent, by allowing more time for dilatation and by a more judicious resort to either forceps or podalic version. The most frequent cause of subinvolution and prolonged convalescence is unrepaired lacerations, but, in all probability, many of the morbid conditions ascribed to lacerations are rather an infection of the lacerated surface. Many cases of severe hemorrhage are due to unrecognized tears, and immediate repair offers the best means of controlling such bleeding, and also of preventing infection of the torn surfaces. Primary tracheloplasty is easily and quickly done, whereas a secondary repair is a difficult and tedious procedure. Even in case union should not obtain in immediate repair, the condition of the woman is none the worse, whereas if successful, the patient is spared the subsequent ills which cervical lacerations sooner or later entail. Medical students should be taught that where hemorrhage persists with a well-contracted fundus, to look for spurting vessels in the torn cervix, and to suture. As to immediate repair without bleeding, they should be taught the advantages, and impressed with the evils which might arise from poor technic and lack of asepsis.

Intestinal Obstruction and Pelvic Operations.—The frequency of intestinal obstruction occurring as a postoperative condition in pelvic surgery is shown by the statement of E. M. CONNER (*Practitioner*, Aug., 1905), that it is relatively frequent. He considers the operation which stands pre-eminent among all others in causing this complication, to be supravaginal hysterectomy. While adhesions may be present without producing any symptoms, the presence of attacks of localized abdominal pain, associated with vomiting, after an abdominal operation, and especially after a pelvic one, should raise the question of the advisability of exploration. The intestinal obstruction usually results from the intestine forming a kink, or better a volvulus, using the uppermost adhesion for a fixed point on which to rotate. The cause of this volvulus, in far the majority of cases, is an increase of pressure within the bowel, produced by gas formation, meteorism. The origin of the meteorism is to be found in some error of the diet or the digestion. Sometimes strong peristalsis draws out the adhesion into the form of a band, under which a coil of small intestine may be ensnared. Meteorism pro-

duces a volvulus in almost every obstructed loop. These adhesions antedate the obstruction, showing that the latter is merely a complication, and raising the suspicion that, for every case in which this does occur, the probability is, that there are many in which it does not occur. The presence of the uterine stump among the small intestines undoubtedly disposes them to become adherent. How this adhesion takes place is not quite clear. Perhaps the most favored suggestion is that the row of sutures and knots offers the opportunity for the bowel to adhere. In consequence of the sutures being tied firmly, if not tightly, the tissues within their grasp are lessened in bulk, fluids being squeezed out of them. There is a tendency for each stitch to lie in a groove of its own making. The fluids which have been expressed in tying the ligature will swell the bulk of the contiguous tissues. The slight injury, thus inflicted, calls forth a reparative inflammatory reaction, augmented later by the irritative action of the aseptic stitch, causes a small effusion of lymph which soon covers the stitches. In the case of a uterine stump, with gaping of the peritoneal edges, the formation of adhesions with the intestines is invited.

PEDIATRICS.

Infant Feeding.—F. S. CHURCHILL (*Journal A. M. A.*, May 28) discusses the embarrassments of infant feeding when breast milk is not available, and the unsatisfactory results of the common practice of diluting cow's milk with water in such cases. He summarizes practically as follows: Cases of difficult feeding in infancy are: (1) Those of fat indigestion; (2) those of sugar indigestion; (3) those of proteid indigestion. Each of these may occur alone or in combination with the others. Proteid indigestion is most common, but fat indigestion is also frequent. Each must be treated individually, the form of indigestion present must be ascertained if possible, and appropriate measures be adopted. The treatment is almost exclusively dietary; the fats and sugar can be regulated by varying the amounts of cream and sugar in the food. The composition of cows' milk, with its high caseinogen and low lactalbumin content must be remembered in treating proteid cases, the caseinogen must be cut down or eliminated, if need be, and the lactalbumin retained. This twofold object is attained by feeding whey. Increase in quantity and quality of the food must be made gradually. In conclusion, he suggests the desirability of careful study of artificially fed infants and publication of the results.

Pyloric Stenosis in Infancy.—CHARLES M. SCUDDER (*Journal A. M. A.*, May 20 and 27) reviews the literature of pyloric stenosis in infancy, and describes the symptoms, diagnosis and treatment. He recognizes two groups, the subacute or chronic, and the acute fulminating cases. While most cases are fairly typical, in some the differential diagnosis is difficult, and a careful study of each symptom and the sequence and grouping of symptoms should be made till the diagnosis is reached by a process of exclusion. He has little faith in the medical treatment, and believes that the condition is practically hopeless without operation. The results of operations since 1898 show a saving of over 50 per cent. of the cases, of which probably all would have died if let alone. An analysis of the fatal cases shows that many of them were due to mistakes or errors of technic, too late operation, etc. The operation should be rapid, free from causes of shock, sepsis or hemorrhage, the parts to be handled gently and isolated outside of the abdominal cavity. The Lorta operation is condemned. Pylorectomy is too severe and pyloroplasty is not recommended save in exceptional cases. Some form of gastroenterostomy is best for most cases, but owing to the shortness of the infant mesentery and other reasons the anterior operation should be avoided if possible. The Finney operation of gastro-pyloroduodenostomy may be suitable in some cases, or, if not feasible, Kocher's gastroduodenostomy may be useful. Aftercare is of vital importance, and, if possible, an expert in feeding a baby should have charge. Absolute quiet is essential, and rectal feeding may be needed for a few days. Scudder does not discuss the etiology to any extent, but thinks that a congenital hyperplasia may occur and a spasmodic contraction of this, after birth, is frequent if not the rule.

PRESCRIPTION HINTS.

Athma.—

℞ Potassii nitratis.....ʒss
Pulv. anisi fruct.....ʒss
Pulv. stramonii fol.....ʒi

M. fiat pulv. Let patient inhale smoke of a thimbleful of this powder, formed into a cone and lighted at the top. (Sawyer.)

Or the following:

Potassii nitratis.....ʒss
Pulv. stramonii flor.....ʒi
Pulv. anisi fruct.....ʒii
Pulv. lobeliae inflatae.....ʒi
Pulv. fol. theae sinemsis nig.....ʒi
Ol. eucalypti.....♏xv

M. fiat pulv. Sig. To be burned as above, using a thimbleful at a time.

A good asthma powder for emergency use is one part, by weight, of saltpetre and two parts of black tea, powdered. (Sawyer.)

Hyperchlorhydria.—

℞ Magnesiae ustæ.....ʒi-ʒiv
Cretae preparatae.....ʒss-ʒii
Bismuthi subnitrat.....ʒi-ʒii

M. et fiat chart No. xii.

Sig. One mixed with a wineglassful of milk or water an hour after each meal. (Reed.)

Or—

Cerii oxalat.....ʒiv
Bismuthi subcarb.....ʒviii
Magnes. carb. levis.....ʒii

M. Sig. One-fourth to a heaping teaspoonful in water two hours after each meal. (Stockton.)

In cases in which the alkalies are not well borne, the following prescription occasionally succeeds:

℞ Extr. belladonnæ.....gr. i-gr. ii
Ext. yerbae santae.....ʒi

M. et fiat mass. in pillulae No. xvi dividend.

Sig. One after each meal, or large doses of bismuth as follows:

℞ Bismuthi subnit.....ʒvi to ʒi
Fiat. chart. No. xii.

Sig. One mixed with milk or water half an hour before each meal.

Occasionally the following is a useful remedy:

℞ Argent. nitrati.....gr. ii-gr. iii
Ext. belladonnæ.....gr. i
Bismuthi subnit.....ʒii

M. et fiat mass. in capsulae, No. xvi dividend.

Sig. One after each meal. (Reed.)

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THE CHATTANOOGA MEETING.

THE meeting of representative Southern men, which has been called for November 9 and 10, at Chattanooga, is one that will be of the greatest importance to the entire country, though the South is naturally more immediately interested. Two subjects are announced for discussion: *First.* A uniform system of quarantine in yellow fever. *Second.* A reform in the matter, not only of landing an undesirable class of immigrants in Southern ports, but of the alleged custom of distributing them from Northern centers throughout the South. This second subject is thus stated in the call:

"Again there are coming into the United States at the present time a larger number of foreign immigrants than were ever known in our country's history. Among these are great masses who are wholly undesirable and whom it will be impossible to assimilate with our institutions. There is apparently a desire, or tendency, to bring many of these undesirable immigrants to Southern ports, and also to distribute them from Northern centers into the South. The South will welcome desirable immigrants from all lands, and it has already racial problems of such gravity that no others should be invited until proven safeguards are provided in advance of their coming."

As will be seen, the question of physical health comes first, as it justly should, for it is very important, and to the country at large just now represents the key-note of the situation. An outbreak of yellow fever, with no common purpose or plan to meet it, with no settled system to hold it in check, throws the Southern people, according to their own reports, into a panic that produces scenes and acts of almost indescribable inhumanity. Shotgun quarantines are a disgrace to civilization, and the very remedy, if there is a remedy, is in thoroughly organized concert of action, prepared and elaborated in advance to meet just such emergencies.

Unfortunately, the problem of securing uniformity of legislation in different States is a most difficult one to solve. After years of painstaking effort only two classes of cases, those of divorce and "negotiable" paper, have made any appreciable progress, and it is doubtful if even now, with the object lesson of this last epidemic staring them in the face, this coming mass meeting will accomplish any practical result, unless the aid of the national power is invoked. For with the greed of business enterprises, and the unwillingness of municipal authorities to interfere with commercial conditions (by the enforcement of a rigid quarantine at the beginning of the outbreak), it is only the strong arm of Federal authority that will prove able to prevent the constant recurrence of these epidemics.

Again, although the question of sanitation is put first in this call for reform, it is in reality the second subject, that of immigration, which is of the greatest interest to the originators of this movement, as it lies close to the very roots of permanent order in the South. Yellow fever, as they frankly say themselves, when present, is a matter of but a few months at the most, and there are sometimes years between the outbreaks. But if the labor conditions of the South become complicated, and racial problems are multiplied, the South will become, says a Southern writer, "the theater of such continuous and appalling disorder as will shake the whole section to the center and affect other centers as well."

For, it seems that some of the Southern planters, having become wearied of negro labor, have been considering the employment of help from Southern Europe, while others, acting in concert with Southern manufacturers whose eyes are fixed on Oriental markets for cotton goods, have been preaching the advantages of coolie labor, and here, as a Georgia editorial says, "would be a mess that would do as much damage as if served hot from the devil's kitchen."

The South is not under the dominion of the negro, but they are there in large numbers and there to stay, so that in remedying their deficiencies it will not do to force them into competition with a race like the coolies, who would arouse the very worst antagonisms of their nature, unless an attempted repetition of the Sepoy mutiny or the West Indian massacre are the objects to be attained. This the conservative element in the South fully recognize, so that to them the last of the two subjects will be the first, while to the medical profession and to the other sections of the country at large, the yellow fever problem will undoubtedly be the burning question.

Let us, however, hope that by the union of the two, some solution may be found that will prove a permanent blessing for both, even if in disguise.

STALAGMOMETRY, A NEW METHOD OF CLINICAL RESEARCH.

The resources of physical science have been amply drawn upon within the past few years in the zealous investigation of the occult phenomena of disease. No less in pathology than physiology does physics play an important rôle. Among the numerous procedures of the most modern research laboratories may be mentioned the determination of the specific gravity of the various body-fluids, cryoscopy or determination of the freezing point of the latter, the estimation of the coagulation time of the blood, the investigation of electrical conductivity of the various secretions, of their viscosity, polarization and osmotic pressure. Only a few of these modes of investigation have proven of any clinical value. Cryoscopy is no longer accorded much weight as an aid in diagnosis. Another method of investigation has been revealed, and according to present indications, it bids fair to become a valuable adjunct to clinical diagnosis.

The essentials of this method consist in the determination of the relative degrees of surface tension possessed by the body-fluids. A painstaking research into the significance of this force in physiology and its possible applications in practical medicine was first made by Prof. J. Traube (*Pflüger's Archiv,* Dec. 1, 1904). A further investigation based upon an extensive amount of clinical material has just been reported by J. Traube and F. Blumenthal (*Zeitsch. f. Exper. Pathol. u. Therap.*, July 21, 1905). In order to gain a clear idea of the nature and importance of this new diagnostic test, it is necessary to consider the part that surface tension plays in the organism.

Prof. Traube is one of the ablest exponents of the doctrine that physical forces underlie most of the important vital processes. Of these forces, the one that enters largely into the most diverse manifestations of life is surface tension. Otherwise known as capillarity, this force represents the tendency on the part of liquid surfaces to contract. The familiar method of measuring the surface tension of a liquid is by means of a capillary tube. But Traube invented a simpler method. He devised an instrument, which he named the "stalagmometer," which measures the number of drops that might be obtained from a given volume of liquid. The stalagmometer consists of a simple glass tube, bent in a certain manner, graduated at one part, and provided at its upper end with a rubber bulb, by means of which the liquid may be drawn up into the narrow bore. The lower end of the tube is slightly expanded into a flat surface, from which the drops may be allowed to fall. The greater the number of drops the less is the surface tension of the liquid.

A great many physiological phenomena, which have been attributed to the operation of osmotic pressure, are really the result of differences of surface tension. Thus, Traube discovered that a solution of low surface tension will pass through a membrane into a solution of higher surface tension. The surface tension of a liquid largely depends upon the nature of the substances dissolved in it. Thus phenol diminishes the surface tension of its solvent. A fact of great significance in relation to the subject of intestinal absorption is that peptones reduce to a great degree the surface tension of the liquid in which they are dissolved, while proteids do not. As the result of this diminution of surface tension, the peptones pass from the lumen of the intestine into the blood. This explains why the stomach and intestine contain only dilute solutions of peptone, as determined by Bernstein, for these are absorbed as rapidly as they are formed.

In digestive disorders in which the process of absorption is disturbed, there is a considerable accumulation of peptones, with a resulting greater diminution of surface tension. This would be indicated in the stalagmometer by the larger number of drops obtained from a given volume of the solution. For water the figure is

53; for normal stomach contents it varies from 63 to 66. Traube and Blumenthal determined the figures in a large number of cases of diseases of the stomach, and in cases of gastric disturbance secondary to some constitutional disorder. The severer the disease the higher is the stalagmometric index. Thus, in peracidity, atony, peracidity with atony, subacidity, carcinoma of the pancreas, anemia, etc., the figures ran between 65 and 68. In carcinoma, pernicious anemia, pyloric stenosis, chronic gastritis, and ulcers, the figures were between 67 and 74. It is evident from these sources that this method of investigation may serve to indicate the relative degree of severity of a gastric lesion. Beyond this, one can expect no diagnostic advantage from this test. But its extreme simplicity of operation recommends it as an initial step in the routine examination of stomach contents.

A second field for the application of this test is the study of the functional capacity of the kidneys. When these are healthy the surface tension of the urine is much greater than that of the blood. In nephritis the surface tension of the urine is diminished, which explains the disturbances in the secretory activity of the kidneys. It is obvious that if the urine had a surface tension equal to or less than that of the blood, the kidneys would be unable to secrete. As an instance of the wise provision for maintaining the high surface tension of the urine, may be mentioned the following: Capillary-active substances which diminish surface tension (such as phenol, indol, benzoic acid, etc.) on their passage into the urine are transformed into compounds (phenolsulphuric acid, indoxylsulphuric acid, hippuric acid, etc.), which are markedly capillary-inactive, maintaining the high surface tension of the urine. If substances like the former were allowed to enter the urine, the kidneys would soon cease to functionate. In unilateral kidney disease a stalagmometric test of the urine would be of diagnostic value. It is important to note that the presence of albumin or sugar in the urine has no marked effect upon the surface tension of the urine. Of great significance is the fact that diseased kidneys lose the capacity of holding back in the blood the capillary-active substances, to which they become permeable. The presence of these in the urine diminishes its surface tension, which necessarily embarrasses the further secretory powers of the kidneys. These facts have been established in cases of nephritis, cardiac disease, cirrhosis of the liver, pneumonia, lysol poisoning, articular rheumatism, scarlet fever, tuberculosis, cerebral lues, and other diseases, either localized in the kidney or affecting it from without.

The nutritive exchanges between the blood and lymph, and the lymph and tissues, respectively, have been attributed to two factors, namely, osmosis and the selective activity of the cells of the capillary and lymphatic walls. Yet, these forces are not sufficient to explain all the phenomena of the nutritive exchanges both in health and in disease. Thus, blood pressure largely determines the flow of the nutritive elements of the blood in the direction of the lymph. The rapidity of osmosis also depends in some degree upon the extent to which the opposing fluids are soluble in each other. Chemical forces, the frictional coefficients of the opposing fluids and the nature of the membrane itself, must all be considered. And if to these be added the surface tension of the blood and lymph, one may gain a complete picture of the mechanism of the bodily exchanges. It is quite probable that a routine examination of the relative surface tensions of the lymph and blood will be of diagnostic value in diseases giving rise to transudates, and in hemophilia, idiopathic edema, etc.

From the view-point of pharmacology, a promising field of research is afforded by stalagmometric observation. It is pointed out by Traube that the alkaloids, antipyretics, diuretics, narcotics, excitants, etc., besides belonging to the rapidly osmosing class of substances, and, besides, being freely soluble in the lipoids of the cellular membranes, at the same time markedly diminish the surface tension of the liquids in which they are dissolved. This diminution serves to explain the marked change in the surface tension of the circulating fluids, which occurs in various drug intoxications, which as a result cause a reversal of the direction of the fluid exchanges. The determination of the relative efficiency of diuretics may ultimately depend upon their degree of capillary activity, just as the latter has been found by Traube to be the test of the relative value of the narcotics. He has actually discovered an exact numerical relationship between narcotic power and surface tension.

It is noted that amyl alcohol contained in fusel-oil, by lowering surface tension and impregnating the walls of the biliary passages, causes an abnormal rapidity in the exchanges that occur through them. On the other hand, part of the

therapeutic value of ethyl alcohol as an aid to digestion, is attributed to the fact that, by lowering surface tension, the alcohol accelerates intestinal absorption, particularly that of the fats.

One very important application of these studies on surface tension is to the problems of immunity and to the therapeutics of antitoxins. Thus, tetanus toxin travels to the brain by way of the fatty nerve fibers, while antitoxin chooses the vascular path. The toxin penetrates the cells while antitoxin does not. The toxin is dissolved in the lipoids of the brain-tissue, while antitoxin is dissolved in the cerebrospinal fluid. The toxin dissolves red blood cells, while antitoxin does not. It is plain that tetanus toxin osmoses and dissolves in lipoids with ease, while tetanus antitoxin does not. Traube suggests that it would be necessary, in order to increase the efficiency of tetanus antitoxin, and probably of other antitoxins, to add to them capillary-active substances, so as to increase their power of traversing the cellular and tissue membranes.

Many other instances of the operation of surface tension in the normal workings of the body and in their pathological modifications, have been noted. Enough have been dwelt upon, however, to indicate that this force is a most potent factor in physiology, and that a recognition of its full value will give it a prominent place among the diagnostic resources of the clinical laboratory.

ECLAMPSIA FROM ANOTHER VIEW-POINT.

There is nothing more encouraging in present-day medicine than the larger view as to the causation of convulsive seizures occurring about the end of pregnancy which is coming to be generally accepted. There was a time, not so very long ago, when practically all puerperal convulsions were attributed to some defect of the kidney. The reason for this is not far to seek.

The presence of albumin in the urine was supposed to indicate definitely a lesion of the secreting substance of the kidney. As a consequence, it was supposed that there was in these cases an accumulation of material in the circulation that had failed of excretion because of renal inadequacy. The significance thus attributed to albuminuria has proved on further investigation to be greatly exaggerated. Albumin may be present, especially under conditions in which there is disturbance of intra-abdominal pressure without having any serious ulterior meaning at all. As a matter of fact, it is very rare for a woman to escape albuminuria during the whole course of a pregnancy. Not infrequently it has happened that young women, who, before marriage, showed signs of albumin in the urine, and to whom the question of the possible existence of Bright's disease had proved a source of worry, were better after a pregnancy or two as regards their renal condition than they had been before.

In recent years attention has also been called to the fact that even the presence of casts with albumin in the urine is by no means a definite indication of the presence of a serious kidney condition. They do indicate that a kidney is sensitive to irritation, and that some irritative process is at work. This irritation need not necessarily proceed to degeneration, however, and in fact never does, unless a condition of lowered vitality is present. Athletes, and especially those who take such violent exercise as long-distance running, rowing, bicycling, and the like, always present casts in their urine after their efforts, but this seldom has any serious significance, if there is not some intoxication at work in their systems at the same time. The kidneys of a pregnant woman seem to be called upon to do somewhat the same kind of extra work as that done by the athlete. Hence, the more satisfying conclusion in recent years—that except in extreme cases such manifestations in the urine of the pregnant should be neglected unless other symptoms of a serious kind are manifesting themselves.

To replace the kidney in the etiology of many cases of eclampsia, other organs have been found from which undoubtedly some of the symptoms at least must be considered to arise. In most cases of convulsions with rapidly fatal termination, it has been found at autopsy that the liver is even more frequently diseased than the kidneys, the pathological appearance being very much like that of an acute yellow atrophy of the liver. It has long been known that acute yellow atrophy occurred almost exclusively in pregnant women, and while it has sometimes been attributed to a specific infection, such, for instance, as produces a corresponding effect in yellow fever, it has generally been thought to be due to some intense toxic process at work in the economy. This opinion was supported by the fact that the hepatic lesions produced by phosphorus poison resembled those of acute yellow atrophy so closely that the two affections have sometimes been mistaken one for the other.

There is no doubt now, however, that in eclampsia the condition of the liver must always be considered, and that treatment must always include this organ in the purview. Unfortunately, when the liver is the main seat of affection, much hope of relief of symptoms by any ordinary remedies is justified.

Within the last few years, another element in the etiology of eclampsia has attracted considerable attention. The ductless glands undoubtedly produce conditions when diseased which may lead to convulsive attacks, not unlike those of eclampsia. It is not surprising that during pregnancy these important structures called upon to do work for two beings instead of one should sometimes prove to be inadequate. Nature has fortunately made provision for the temporary hypertrophy of these organs so as to compensate for this strain upon them. The well-known tendency for the thyroid gland to enlarge during pregnancy has been noted by all observers. At times, however, even this enlargement apparently fails to compensate. On the other hand, not a few of those women who have a cystic enlargement of the thyroid prove during the course of pregnancy to have some thyroid inadequacy, perhaps because of interference with the circulation, and it is particularly in them that some of the milder forms of eclampsia evidently dependent upon inadequacy of the ductless glands have been noted. On the other hand, the enlargement of the thyroid may at times exceed the physiological demands, and in like manner produce a nervous sensitiveness with tendencies to explosive attacks of nerve force resembling convulsions.

Finally, in nervous women, it has been noted over and over again that the strain of pregnancy produces a condition in which there is a lack of nervous equilibrium and a distinct tendency to the occurrence of functional nervous disorders that may manifest themselves apparently in convulsive seizures. This is especially true of women with hysterical tendencies who have heard much of eclampsia and its dangers and have learned to dread them. It has been a subject of frequent remark at medical meetings that the wives of physicians seem to be more liable to eclampsia than other women of a corresponding condition in life. Undoubtedly this is due to the fact that the doctor's wife is apt to know through her husband of any cases of eclampsia that occur in his practice, and may even add to the knowledge thus acquired by surreptitious reading of medical books. Under these circumstances, it is not surprising that occasionally what are genuine hysterical attacks should be mistaken for eclamptic convulsions. When an examination of the urine disclosed the presence of albumin so common in pregnant women in the old days, the diagnosis of eclampsia was confirmed. If the doctor's wife knew, as was frequently the case, of her albuminuria, then the nervous manifestations were likely to be increased from fright and worry. Not a few of the remedies that have acquired a reputation for the relief of eclampsia have obtained their reputation because of apparently successful use in such cases as these. Hence the large number of drugs that have, at one time or another, gained a temporary reputation as specific for eclampsia.

The whole of this newer and better outlook upon eclampsia is in line with the determination becoming every day more widespread—to view the patient as a whole rather than as suffering from one or more supposedly pathognomonic symptoms. It is not the urinary examination alone that can indicate the extent of the danger. The entire clinical picture must be taken into consideration. There is no doubt now that eclampsia is an intoxication, though not of renal origin alone, but of multiplex etiology. Undoubtedly, the constipation so frequent during pregnancy plays an important rôle in the development of these intoxications. It is in this matter, and from the very beginning of pregnancy, that most can be hoped for in the prophylaxis of eclampsia. The liver lesions that have been described as the basis of the severer forms of the affection owe their origin to an intensely toxic material resembling the substances produced when phosphorus is present in the intestinal tract. Each case, however, must be a separate and individual study. No single drug or set of drugs can reasonably be expected to accomplish therapeutic results in so multiform a disease. This is the encouraging part of the present situation and the foundation of hope for true progress in the etiology and, consequently, for the more successful treatment of eclampsia.

Cholera Under Control.—The official bulletin issued in Berlin, on September 18, says there were ten fresh cases of cholera and five deaths from noon Saturday to noon Sunday, and three new cases and one death from noon Sunday to noon Monday, making the totals 202 cases and 77 deaths. It was announced on September 19 by the German Government that the cholera has been checked and any danger of epidemic is entirely unlikely.

ECHOES AND NEWS.

NEW YORK.

Bequest to the Seney Hospital.—By the will of the late W. D. Toy, filed in the Surrogate's Office, Brooklyn, N. Y., $5,000 is left to the Seney Hospital for the endowment of a bed in memory of Lucy A. Toy, wife of the testator.

Medical Society of the State of New York.—The Business Committee, to have charge of the program of the next annual meeting of the Medical Society of the State of New York, to be held in Albany, Jan. 30 to Feb. 1, 1906, appointed by the president, Dr. Joseph D. Bryant, consists of Dr. Leo H. Neuman, chairman, Albany; Dr. Algernon T. Bristow, Brooklyn; and Dr. Herbert U. Williams, Buffalo.

College of Physicians and Surgeons.—The opening exercises of the academic year 1905-6 will be held in the Lower Lecture Room on Thursday, Sept. 28, 1905, at three o'clock P.M. After a brief address of welcome by the president of the university, an address will be delivered by Samuel W. Lambert, A.M., M.D., Dean and Professor of Applied Therapeutics, upon "Some Present Fallacies in Medical Education."

New Medical Directory Out.—This year's edition of the medical directory, issued by the Medical Society of the County of New York, has appeared in the form of a neat, clearly printed and handy volume of more than 600 pages, compact and comprehensive. It includes lists of legally qualified physicians of all schools resident both in New Jersey and Connecticut, as well as in New York City, together with the summer homes of New York physicians who are members of the society. There is also information concerning hospitals and asylums, health department officers and coroners, besides a street directory of physicians in the city.

New Jewish Hospital.—The roof of the new Jewish Hospital of Brooklyn has been completed, so one of the important Jewish charities in the country is soon to be well housed. The society had long been working for money sufficient to build a hospital, when, about a year ago, chance threw a desirable building in their way. This was the Memorial Hospital for Women and Children on Classon Avenue, extending from St. Marks Avenue to Prospect Place. A good sum of money was assured to back the enterprise, and the building of two additions was begun almost immediately. The new wing, together with the complete remodeling and refurnishing of the whole building will cost $150,000. Of this total, $100,000 is in hand, and the remaining $50,000 is to be secured by a fair, to be held in the hospital building the last week of November. All the Jewish societies of Brooklyn will be affiliated in this work, each having its special department. The president of the fair committee is Abraham Abrahams, one of the chief benefactors of the hospital. Its chairman is Nathan S. Jonas.

First Aid on Railroads.—The fourteenth annual meeting of the Erie Railroad Surgeons' Association was held last week in the Hotel Astor. Dr. F. A. Goodwin, of Susquehanna, Pa., presided, and about fifty physicians were present. Papers were read on many subjects, including the following: "The Eyes of Railroad Employees," "Reflex Pains," "Emergency Hospitals for Shops," and "Some Principles to be Considered in the Handling of Railroad Cases." The Erie Railroad requested the association to submit some plan or to suggest some course of instruction for certain of the railroad employees on the lines of "first aid to the injured," in order to minimize fatalities in railroad accidents. A resolution favoring the scheme was adopted, and a committee was appointed to formulate some plan of action. Speaking of "Emergency Hospitals for Shops," Dr. C. S. Parkhill, of Hornellsville, N. Y., recommended "emergency boxes" on all trains. "Every railroad should have a special 'first aid' department," he said. "under the direction of a surgeon, and a sufficient number of employees in all departments should receive instruction to enable them to render first aid to the injured."

Country Bred Typhoid in City.—Many cases of typhoid fever are reported from the various city hospitals as due to the conditions prevailing in the summer resorts up the State from which the sufferers recently returned from their vacations. Most of the patients came from Dutchess, Orange and Sullivan counties. The sanitary situation in those regions has been called to the attention of the State Board of Health and an investigation is now under way. Among the patients recently treated in the Presbyterian Hospital was a whole family of five persons, who were taken directly from a train at the Grand Central Station to the hospital. "Practically all these cases of typhoid," said Health Commissioner Darlington, "are now being brought into the city from the country. The drainage conditions at farmhouses and country boarding places and hotels are not of the best and as a result the germs of typhoid often filter into the wells and contaminate the water. The Board of Health, whenever a case is reported here, causes a full history of it to be taken, so that the source of the infection may be traced and measures taken to prevent a recurrence of the disease. The Board of Health has taken especial interest in the sanitary conditions in Dutchess, Orange and Sullivan counties, where so large a supply of the milk of this city comes from, and many of the dairies there were closed until their owners made alterations and repairs in conformity with the regulations. In many instances farmers used the water from contaminated wells in washing milk cans and pails. The amount of typhoid in the city at present is about normal for the present time of the year. According to the department reports the number of cases last week was twenty-three, which is slightly above the average for this season.

Copper to Stop Typhoid.—The application, properties and effect of copper sulphate, for the purification of water supplies, formed a topic of discussion at the convention of the New England Water Works Association, which met in this city last week. D. D. Jackson, of Brooklyn, in a paper on "Destruction by Copper Sulphate of Typhoid Fever Germs," said experiments he had made demonstrated that one part of copper in 50,000 of water was necessary to destroy typhoid germs, and that this was more than could be safely used. No more than one part of copper in 1,000,000 of water could be safely used, he said, and that such a solution would be insufficient to produce any beneficial results. Prof. Henry Krämer, of Philadelphia, in a paper on "Germicidal Properties of Metallic Copper," said that his investigations had convinced him that the introduction of copper foil into water would destroy typhoid germs and that certain forms of lower animal life were also destroyed by it. He said that all drinking

water used in his own family for more than a year had been treated with copper and no ill effects upon the health of any of its members had been observed; on the contrary, he said, their health had never been better. All vegetables used by his family, he said, when eaten raw were first washed in water treated with copper. Prof. Krämer was positive that copper in proper quantities could have no evil effect in the human system. Prof. Herbert E. Smith, of New Haven, speaking on "Toxicological Aspects of the Copper Sulphate Treatment," said that copper poisoning was seldom more than temporary in its ill effects, even in large doses. He said copper did not produce chronic poisoning such as is caused by lead and mercury. A single large dose of copper might produce acute poisoning, he said, but the continued use of small doses for lengthy periods produced no ill effects.

PHILADELPHIA.

Aid to Hospitals.—One of the latest methods of aiding hospitals is the introduction of street carnivals. In the southern section of the city the people have occupied several squares on the street with booths from which refreshments are sold, the proceeds of which will be given to the Methodist and St. Agnes Hospitals.

Factory Laws Violated.—During their visits the State inspectors have found that the factory laws are being violated in many of the mills of the northern sections of the city. The proprietors of these business places are extremely negligent in regard to the sanitary conditions, especially is this true of the cloak and toilet rooms. The labor unions are the chief instigators of the complaints.

Wills Eye Hospital Taxed.—As a result of the many defects found in the school children by the medical inspectors the Wills Eye Hospital is busily engaged in treating these patients. There are many requests for the hospital to furnish not only the medical treatment, but also the glasses which the authorities say they are unable to do under the present system of financing the institution. One of the members of the Board of Directors said the other day that if the institution were properly endowed all school children, or at least those too poor to pay, could be supplied with glasses.

Board of Health Physician Held for Damages.—Having heard of the awarding of damages, Mrs. Mary Fay, of 231 Montrose Street, conceived the idea of obtaining an easy livelihood hereafter, and accordingly entered suit against Dr. Alfred Marshall, a medical inspector of the Board of Health for unlawfully quarantining the said Mrs. Fay's home. The woman holds that after her child had been taken to the Municipal Hospital the sign of diphtheria, the disease from which her child was suffering, should not have been tacked upon her door. Then, too, she claims the smallpox placard which was placed upon the house was there unlawfully, since, in her opinion, her other child did not have this disease. The fact that the first child was discharged from the Municipal Hospital several days after her admission led Mrs. Fay to believe the child did not have diphtheria.

Who Owns the Prescription?—One of the daily newspapers in an editorial takes up this question, and before reaching conclusions as to the entitled ownership, reviews the arguments set forth by physician, druggist and patient in favor of their claim on the desired order. The physician bases his claim upon the right by creation and right to renew indefinitely, so the paper said; the druggist bases his claim on the right of possession, while the patient claims by right of purchase. The dispute, the newspaper says, is made obscure by treating the prescription as substantial property. The prescription is nothing more than a written order to the druggist, requesting him to put up an article accurately described therein. The patient does not buy the prescription, but the compound called for by the order; consequently the prescription rightfully belongs to the druggist, who retains it as a receipt that the order was correctly filled.

Typhoid Fever.—While the number of cases of typhoid fever in Philadelphia have fallen from 152 last week to 89 this week, the number of cases in Nanticoke, a town near Wilkesbarre, where an epidemic is now prevalent, has steadily increased; fourteen new cases were reported in one day, the average being ten daily; the total number is now 212. According to Dr. Dixon, the source of infection is removed. He stated that the water pipes have been cleaned, sulphate of copper has been put in the water, and in a few days the reservoir will be pumped out and cleaned. While an improvised hospital has been provided it is insufficient to accommodate the number of cases that have developed, so that hospitals in nearby towns have been asked to take as many patients as they can accommodate. The State Hospital at Hazleton, which is an hour and one-half by rail from Nanticoke, responded quickly; the other hospitals in the vicinity, especially in Wilkesbarre, also offered relief. Dr. Johnson, who has charge of the epidemic, found that in order to carry out the work funds were needed, and appealed to the citizens of the town for help; the appeal was not fruitless. In all, seven nurses from Philadelphia and Harrisburg have been sent to the town to care for the patients. The Director of Public Safety has ordered the police to locate all families who are using well water, in order that the water from all such sources may be tested bacteriologically. There are sixteen cases in Nanticoke.

CHICAGO.

Doctors Raise Visit Fee.—Because they need the money, is the simple and frank reason given by Evanston physicians for a rise in fees of one dollar a visit, which goes into effect this week. "Evanston is a more expensive place in which to live than Chicago, and for this reason prices for medical service should be at least as high in the suburb as in the city." For years Evanston physicians have been charging two dollars a visit, but they have recently organized a local medical society, and increased prices are the result. The society is also making an effort to secure physical examination of school children, and a plan for securing a lecture-room in the new library, in which popular talks on matters medical may be made, is also on foot.

Examinations for Positions on County Hospital Staff.—Examinations of candidates for places on the staff of the County Hospital will begin on September 28. Those who pass will be placed on the civil service eligible list, and will be assigned places on the staff when vacancies occur. Whenever a member of the present staff resigns or the place is made vacant it will be filled from the eligible staff. The life of the present staff cannot exceed six years, as it is fixed by the civil service act passed by the

State legislature, and no member of the present staff will be permitted to serve a second term. The examinations will be held by the County Civil Service Commission, but its chief details will be conducted by the examining board of reputable physicians and surgeons.

Staff of Vaccinators.—Dr. Heman Spalding, Chief Medical Inspector, reports that the appointment of a staff of vaccinators for the public schools was completed before the beginning of the school term. "Over two hundred vaccinators are equipped and ready to furnish free vaccination to all school children who apply on the school premises. Last year a few entered school upon false certificates of vaccination signed by doctors. Some of these contracted smallpox and a few died as the result of this criminal practice. One child permitted by the principal to enter school without any certificate of vaccination remained in school two weeks, contracted smallpox and died of that disease a week later. No vaccinated school child contracted the disease, though exposures to smallpox were numerous. The vaccine to be used by the public vaccinators is tested in the Department Laboratory, and is rejected if any impurities are found.

Laboratory Examinations.—During August, 1905, 488 physicians brought or sent to the Laboratory culture specimens, blood, sputum, etc., of patients suspected of diphtheria, tuberculosis, typhoid fever, etc., for examination. This is a daily average of more than twenty for the twenty-four working days of the month, and an increase of 41 per cent. over August, 1904. The practical value of this work to the health and life of the citizen may be inferred from the facts concerning typhoid fever. Out of 379 examinations made in the Laboratory of suspected typhoid fever, 111, or less than one-third, proved to be true typhoid, and the diagnosis was thus cleared up for the attending physician who modified his treatment accordingly. In 13 of the cases which showed the clinical or bedside symptoms of typhoid, and were being treated for typhoid, the Laboratory examination showed the disease to be intestinal influenza—the treatment of which is wholly different from that for typhoid fever.

An Ounce of Prevention.—The statement of the inadequacy of meat inspection in Chicago made by Health Commissioner Whalen merits serious attention. That constant and thorough inspection is the price of health is one thing modern municipal administration should have learned by this time. The city of Chicago may be poverty-stricken, but it cannot afford to neglect every reasonable precaution against such calamities as that which to-day is teaching New Orleans a tragic lesson. Dr. Whalen calls especial attention to the grave insufficiency of meat inspection. Where meat is distributed over the immense area of Chicago by hundreds of obscure retail dealers, it is impossible for a few inspectors to prevent the sale of meat which has become unwholesome after its inspection at the yards. Six inspectors are at work where forty are needed, and as a result hundreds of families are innocently imperiled by unwholesome meat. The matter is made worse by the fact that these victims are generally least able to protect themselves and to discover and combat disease. The staff of sanitary inspectors should be increased, says Dr. Whalen, at the same time, and there is little doubt that Chicago could not expend money more usefully than in the development of an efficient, well-equipped and non-political body of inspectors, and a scientific and comprehensive system of food and sanitary inspection. The present equipment is plainly insufficient. The city is healthy, but it is so in spite of rather than because of the adequacy of the sanitary machinery. What is being done is being well done, but the provisions made for the health department should be greatly enlarged.

CANADA.

Toronto General Hospital.—The trustees of the Toronto General Hospital will soon take decisive action on the question of a new hospital, but in the meantime they have wisely decided that the present building shall be as far as possible equipped in every respect equal to the best hospitals in other great cities. Some time ago the plumbing was all overhauled and replaced, and many other improvements carried out, and within the past few weeks through the generosity of a few wealthy citizens valuable appliances have been provided. The wisdom of renovating the present building and improving its equipment is obvious when it is borne in mind that probably three or four years must elapse before the new hospital can be ready for use, and it would be unfair to the staff, as well as cruel to the patients to refrain from making all needed improvements on the plea of waiting for the new building. The Toronto General Hospital will now be splendidly equipped, and can, as it always did, give to its patients the benefits of the very latest discoveries and inventions for the healing of the sick. When the time comes, as it must at an early date, for the trustees to take action regarding the erection of the new building, the present board of trustees who have no preconceived plan to propose, will call in for consultation and advice representatives of the Provincial Government, the City Council, the University of Toronto, and private donors to the hospital funds, and these representatives, all desirous of having the very best of hospital buildings for this city, will probably call into existence a new hospital trustee board, in whom will be vested the property and the government of the greatly enlarged and improved institution. This new board will have grave and serious duties to perform, and will have to assume heavy financial responsibilities. No definite estimates of the actual cost of a site and building have as yet been made, but it will amount to a large sum, probably a million dollars, and even more, and there should be a fairly large endowment fund from the very first. Toward the necessary funds the present trustees offer to hand over all the property of the existing trust, valued at about $600,000, and producing nearly $25,000 annually. The Ontario Government has granted $250,000 and authorized the University of Toronto to grant from its funds $50,000 additional, the latter amount to go toward the purchase of a site. The city of Toronto has granted $200,000, all of which must go toward the purchase of a site. Mr. Cawthra Mulock, one of the trustees, has given $100,000, and there is said to be in sight another $100,000. It will be obvious, therefore, that if the present endowment of $25,000 per year be retained as an endowment for the new hospital there will be a large amount to be raised otherwise. The citizens of Toronto will without doubt respond to any appeal for funds as soon as the proper authorities are ready to ask for donations. There are three or four suggestions as to what will be done with the present

buildings once the new hospital is ready for occupation. The most feasible one is that a small hospital be retained on the present site for the accommodation of the eastern portion of the city.

GENERAL.

Purdue University.—On September 1, by the unanimous action of their respective boards of trustees, assembled in Indianapolis, the Medical College of Indiana was made the Medical Department of Purdue University, with the title of Indiana Medical College, The School of Medicine of Purdue University.

New Hospital for Jersey City.—Ground for Jersey City's new city hospital, which will be built on the site of the present ramshackle structure, was recently broken by Mayor Mark M. Fagan. The Mayor used the spade with which he upturned earth for the free public bath, the People's Palace and the new high school building.

American Doctors at Hamburg.—Drs. Allan and McLaughlin, experts of the American Shipping and Immigration Society, have arrived at Hamburg from Naples to study the cholera and inspect the ships. They praise the city's sanitary arrangements and express regret that exaggerated accounts of the danger have been sent to America.

Mexican Health Officer Coming.—A Mexican cable despatch to the *Herald* says that Dr. Eduardo Liceaga, president of the Superior Board of Health of Mexico, with a party of twenty-three, passed through El Paso, Texas, on September 18, for Boston, to attend the session of the American Health Association, to be held on September 25.

A Healthy Town.—The Board of Health of Montclair, N. J., has issued a statement concerning the healthfulness of the town, especially with reference to the absence of communicable diseases. It shows that for the six months ending September 1 there have been but five cases of typhoid fever. This record of about three cases in every 10,000 of the population is remarkable. No communicable disease of any kind has been reported since August 24.

Typhoid Epidemic in Springfield.—Dr. G. B. Magrath, of Boston, an assistant of the State Board of Health and an expert pathologist, is now practically in charge of the typhoid fever situation in Springfield, Mass., which has now reached the epidemic stage. While the Board of Health made no direct request of the State Board to look into the matter, the assistance thus derived will be very welcome, and hearty cooperation is being given, not only by the Board of Health, but by the water department and the milk inspector.

A New Mosquito Killer.—It has been announced by Dr. J. H. White, United States Marine Hospital Surgeon-in-charge in New Orleans, that the new mosquito exterminator known as "Culicide," discovered by Dr. Mims, chemist for the city Board of Health, will be adopted by the Government. Dr. White announced that the disinfectant is composed of equal parts of carbolic acid and gum camphor. He has advised strongly against amateur use of the composition owing to its explosive character. None but skilled employees of the United States Marine Hospital Service will be permitted to use it.

Starts a Parasite Exchange.—Dr. L. O. Howard, who was sent to Europe in June by the Massachusetts entomological officers for the purpose of collecting and shipping to this country parasites for the suppression of the gypsy and brown-tail moths, has returned to Boston. He announced that he had made an agreement with European officers whereby they will ship to this country the insects needed for the moth warfare, in return for American parasites needed abroad. Dr. Howard said that the parasites he had secured merely would keep the moth pest in check, and that property owners should not in any way relax watchfulness over their trees.

Wholesale Vaccination in Newark.—All principals, teachers, janitors and pupils of the Newark public schools, numbering over 40,000, will be required within the next week or two to undergo a medical examination, so that it may be determined how many of them have not received a successful vaccination in the last five years. Those who have not will be vaccinated. The plans for this examination will be made at a meeting this week of special committees of the Board of Education and the Board of Health. It was accidentally discovered last week that at least 10 per cent. of the school children had not been successfully vaccinated within five years, notwithstanding the fact that nearly all of them held doctors' certificates which said they had been. It has always been known by the authorities that some of the pupils obtained fake certificates, but it was not imagined that the number was nearly so large.

The Harvey Society Lectures.—The first lecture of the recently organized Harvey Society will be given by Professor Hans Meyer, the distinguished pharmacologist of the University of Vienna. Professor Meyer will speak in German upon the subject "Die Theorie der Narcose." The lecture will be held on Saturday, October 7, at half past eight o'clock in the evening, in the New York Academy of Medicine. The second lecture will be given on October 14 at the same hour and place, by Professor Carl von Noorden, of Frankfort-a.-M., the well-known authority on diabetes. The title of Professor von Noorden's lecture is "Modern Problems of Metabolism." The lecture will be delivered in English. Other lectures of the course will be given by Profs. L. F. Barker, Howell, Lee, Levene, Mendel, Minot, T. H. Morgan, Novy, Park, Theobald Smith and J. C. Webster. It is hoped that the Harvey Society may be of use in furthering the wider diffusion of knowledge of the medical sciences. The Harvey Society cordially invites those interested to attend these lectures.

Getting at the Lazy Worm.—That the people of Porto Rico have become enthusiastic in their desire to rid themselves of the scourge of anemia, popularly designated the "lazy worm" affliction, is indicated in a report just received by the Surgeon General of the Army from Capt. B. K. Ashford, who is expending $15,000 this year in a campaign against that malady. During the months of June, July and August nearly 10,000 patients had been treated, with cures in nearly every instance. In August, at the medical station at Abonito, exactly one-third of the population was treated. This number was 2,482. Of these six died, 716 were discharged as fully cured, while the majority of the remainder are on the road to recovery. The effect of the disease is to render the victim anemic and absolutely unfit for work. The disease gradually wastes away the tissues, during which time the afflicted become a public charge on the community. The natives believed this wasting away was from lack of food and ridiculed the idea that a cure could be effected through the use of medicine.

A Neglected Epidemic.—Two hundred and sixty-one cases reported to the Board of Health, with victims ranging in age from nine months to forty-three years, and a total of thirty-three deaths, is diphtheria's record in Southbridge, Mass., since it began ravaging a year ago, or, to be precise, a year, a month and two weeks

ago. And even after this long siege of the disease, which has appeared in substantially every locality in Southbridge, it still continues, and the Board of Health now has eight new cases on its hands. The Southbridge Board of Health has issued orders and instructions enough to stamp out a plague, but the orders have not been enforced, and the epidemic continues. In a large number of cases parents have recklessly failed to adhere to the advice given them by the Board of Health to keep children in afflicted families indoors, but have freely allowed children to mingle here, there and everywhere in localities containing the disease. This point is the keynote to the situation. A rigid and effectual quarantine has never been maintained, in the face of one of the most dreadful epidemics of the disease in the history of the State.

Robs Marine Hospital Fund.—James W. Boyd, a clerk in the Marine Hospital Service, was arrested September 18 on a warrant sworn out by Chief Clerk W. P. Worcester of that office, charging him with embezzlement. He was held in $10,000 bail for examination. The amount of loss, according to Boyd's confession, is not less than $20,000. It was Boyd's duty to prepare bills for the approval of the Surgeon General, and when checks were signed they were delivered to him to be mailed. It is charged that he manipulated the bills by erasing dates and amounts of duplicates left in the office, and that he got the money on the checks by indorsing the name of the firms to which they were issued. It is alleged that the work has been going on for three years, but Boyd was not suspected until a recent illness last Thursday compelled him to be absent. When his desk was opened a number of suspicious documents were found. Property belonging to Boyd, valued at about $8,000, has been seized. He had been in the public health service for twelve years, appointed from Westchester County, N. Y., and was drawing a salary of $1,800 a year. His fondness for automobiling had attracted attention to him about town.

President Roosevelt Opens the Diamond Jubilee.—On Saturday, September 16, President Roosevelt touched the electric button that opened the diamond jubilee, given in aid of the yellow-fever fund in New Orleans. The city was a mass of flags and bunting as if prepared for a carnival. The President sent a telegram to Mayor Behrman, expressing congratulations and sympathy, and in the correspondence that followed made clear his intention of visiting New Orleans in October, if the people of that city wish it, "subject only to the feeling of other States on the quarantine matter." This message created a profound sentiment of appreciation in the city, and at a meeting of the citizens' committee an answer was sent by Mayor Behrman reiterating the invitation and advising that Dr. J. H. White, United States Marine Hospital surgeon in charge, had authorized the statement that absolutely no danger need be apprehended, and there is no reason on that account for canceling or postponing the visit. The only obstacle in the way is the rigid quarantine of Arkansas, which is included in the President's itinerary after leaving New Orleans. Communication has been opened with Gov. Davis and the President of the Arkansas Board of Health, and favorable action is expected.

To Deal With Morally Insane.—Prof. Liszt, of Berlin, in a paper on "moral insanity," which was read at the Congress of Criminologists, submitted that special measures must be carried out to render morally insane persons, whether criminals or not, harmless to society. Secondly, the professor insisted that morally insane persons must be punished with less severity than others. Prof. Thorp, of Copenhagen, opposed the second proposition. He said it was customary in Denmark to punish the morally insane less severely than ordinary criminals, but the system provoked general discontent. It was only suitable for those who were irresponsible from external causes, such as drunkenness. Experience showed that persons who were morally insane were not susceptible to improvement by punishment, and always relapsed into crime. They should not be punished, but should be dealt with by special treatment. Dr. Kielhorn, representing the schools of Hamburg, said the percentage of morally insane children was far greater than was generally believed. Over 1,000 were taught in nine Hamburg schools. Two per cent. were confirmed criminals, whose rescue was hopeless, but the remainder could be reformed by suitable treatment. Punishment by imprisonment or detention did more harm than good. After a long debate, in which many speakers denounced Prof. Liszt's propositions as unworthy compromises, both were adopted by a large majority.

Fever Fighters Encouraged.—Though hope that the fever in New Orleans would be eradicated by the first of October was some time ago abandoned, many persons feel that if the threats of the authorities have their effect and suppression is no longer practised, the fight will be virtually at an end fifteen days later than the day set. The situation indicates some improvement, notwithstanding the warm, wet weather. In several centers of the city where the fever heretofore prevailed it has disappeared and nests of infection are scarce. Two positive cases have been reported from Kentwood, a lumber town in Tangipahoa parish, not far from the Mississippi line. These are the first cases in that vicinity. From Tallulah and Lake Providence come reports of improvement in the situation, the absence of deaths being encouraging. At Lake Providence the situation is somewhat complicated by the number of walking cases that are discovered among the negroes. They spread the fever before they are discovered and isolated. For the purpose of reassuring communities in the South dealing with New Orleans, Dr. White authorized the statement that all cars loaded with freight will be sealed and fumigated by the United States Marine Hospital Service and so certified. This announcement is expected to cause a general raising of freight quarantines. Dr. Rosenau, bacteriologist of the Marine Hospital Service, has forwarded a jar of four hundred specimens of the stegomyia which he has gathered, to Surgeon-General Wyman, for study in the Government laboratory. Dr. Rosenau says that while some proof is needed it is not improbable that the local bacteriologists who have been at work in this field have discovered the germ of yellow fever.

Some Medicines Are Liquors.—Under a decision recently rendered by the Commissioner of Internal Revenue every druggist who after December 1 of this year may sell certain so-called patent medicines having whisky or other distilled spirits as the chief ingredient will be obliged to pay a special tax to the Government as a liquor dealer. The manufacturers of these medicines will be required to pay the special tax imposed upon rectifiers and liquor dealers. Commissioner Yerkes, who promulgated the decision after conference with Secretary of the Treasury Shaw, is convinced that several so-called medicines widely advertised and extensively sold are really not medicinal in their character beyond the inherent medicinal quality which may be possessed by the alcohol or other distilled spirits which forms their chief ingredient. In his order imposing the special liquor tax on dealers handling those so-

called medicines Commissioner Yerkes said: "The fact that these compounds during the existence of the statute imposing a tax on proprietary medicines were, without the necessity of investigation into their medicinal character, by the terms of the law made subject to that tax because they were held out to the public as medicines, does not afford ground for relieving the manufacturers from special tax as liquor dealers under the provisions of section 3244, revised statutes and amendments. It is held that the statute requires the exaction of this special tax from the manufacturer of every compound composed of distilled spirits, even though drugs are declared to have been added thereto, when their presence is not discoverable by chemical analysis, or it is found that the quantity of drugs in the preparation is so small as to have no appreciable effect on the alcoholic liquor of which the compound is mainly or largely composed. The same ruling applies to every alcoholic compound labeled as a remedy for disease and contagion containing, in addition to distilled spirits, only substances or ingredients which, however large their quantity, are not of a character to impart any medicinal quality to the compound. The Department has heretofore accepted the sworn statements of the manufacturers as to the ingredients. Hereafter this will be determined, not by the declaration of the manufacturers, but by the Government chemists, who will go into the open market and buy proprietary articles under suspicion. To-day the Department refuses to make known the ones which it believes will be subject to this tax on December 1, but by that time a list will be prepared, so that the country grocer who keeps a shelf of general family medicine, will be able to learn those which he can carry only by becoming a liquor dealer within the meaning of the Federal law.

OBITUARY.

Dr. LEWIS E. HANMORE died in Newburgh, N. Y., September 19, from consumption. He was a graduate of the College of Physicians and Surgeons, New York, with the class of 1884, and a member of various medical societies in Europe and America.

Dr. ROBERT ORMISTON, a physician of Brooklyn, N. Y., died September 19, at Stamford, N. Y. He was born at Rossie, St. Lawrence County, N. Y., seventy-three years ago, and was graduated from the University of Pennsylvania in 1858. He served in the Civil War as a surgeon with the Thirteenth New York Infantry. For thirty years he was head surgeon of the Brooklyn Hospital.

Dr. THOMAS JOHN BARNARDO, the founder and director of philanthropic institutions by which many thousand orphan waifs have been rescued, trained, and placed out in life, died September 19. Dr. Barnardo had suffered from angina pectoris for some years. He was born in Ireland in 1845. Early in life he was made a Fellow of the Royal College of Surgeons. In 1885 he received a medal from the French Société Nationale d'Encouragement du Bien. He wrote many pamphlets and founded various magazines explanatory of his work. Perhaps the best known of his publications is "Something Attempted, Something Done."

CORRESPONDENCE.

THE FIGHT FOR THE RIGHT.

To the Editor of the MEDICAL NEWS:

DEAR SIR: How to combat successfully the immense evil of quackery and secret, or even proprietary, medicines with published formulæ, is and has been a great and unsolved problem to all conscientious medical practitioners. After much thought and experience I know of only one practical way, as I believe.

Patients should not read or become familiar with their prescriptions. The nearest relative or friend should be told during the period of treatment and later, when the patient is well or no longer under professional advice, he may at times, as frequently be told, if he desires to know, what means *precisely* have been used to produce the desired result. But to permit any patient, and especially the one suffering from a chronic disease, to reason morbidly and imperfectly about what is being done for him is always prejudicial in greater or less degree to his present ultimate well-being. A physician *is* either skilful, reliable, absolutely square, or he *is not*, and no power on earth will change the one or the other. As a rule of action let the patient in advance, therefore, get all possible information in regard to his medical adviser before he places himself in his care. But once he has selected him for good and sufficient reasons let him trust him and rely upon him unreservedly. When this is generally done we shall then see the downfall of quackery, charlatanism, fraud, ignorance—no matter how thinly or thickly coated. But until that state of mind is reached by the public generally I for one am of the opinion that all our worthy efforts in other and different directions will remain necessarily only partially successful. These lines, Mr. Editor, are prompted by your editorial entitled "A New Hope in the Battle with Quackery" (MEDICAL NEWS, Sept. 2, 1905, p. 457). BEVERLY ROBINSON.

New York, Sept. 6, 1905.

EVIDENCE AGAINST ILLEGAL PRACTITIONERS.

To the Editor of the MEDICAL NEWS:

DEAR SIR: I have read with considerable interest the comment under the heading "Echos and News—General," on page 418 of your issue of August 26, and while I am informed there has not been for several months any prosecution actively carried on by the County Association and none by the State Association, yet the subject to which you refer is interesting, and in taking this matter up arrogate to myself the title of "Legal Luminary," referred to in the article.

For over five years I have conducted in the County of New York the prosecution of illegal practitioners of medicine in various branches, and in but one instance has there ever evidence been secured or attempted to be secured against a regular practising physician for the crime of abortion. In that instance I made use of an especially employed prostitute in preference to a legally married woman, for the reason that I considered the act itself degrading, and felt that no married woman ought to be asked to subject herself to any possible indignity, especially when she was actually child-bearing.

I consider this class of work undignified not only to the profession of law, but also undignified to the profession of medicine, and as wholly without the province of medical organizations, and while the crime in this one instance was not to be actually consummated, but only the attempt was to be charged, yet I felt and still feel a sense of abhorrence even to securing evidence against a member of the medical profession, a profession than which there is none more dignified, honorable and far-reaching in its influences and offices. However, in the direction of securing evidence against medical mountebanks, charlatans and what are ordinarily called quacks, the same ethical principle may be involved, and in that direction I differ absolutely with the sentiment expressed by the distinguished jurist in so far as it refers to the securing of evidence against this class of law-breakers.

The conditions which exist in the small cities of the State of Indiana are so divers and insignificant when compared with those in a great metropolis, that it is perhaps unfair to refer to the remarks of Judge Buckingham as applying to conditions here. Of course, the statement of the number of medical mountebanks in the County of New York as being twenty thousand is absurdly exaggerated; yet, with the laws as they exist at present, there is no evidence of a decrease in the number in the past five or six years. That is due in my judgment, to the inadequacy of our statutes in dealing with perhaps the most dangerous class in its effect directly upon the public health and their facilities for advertising their wares. The crime of illegal practice of medicine is a misdemeanor in the State of New York and is punishable by a fine or term of imprisonment, or both, limited only to a maximum in its degree of punishment, and leaving the minimum wholly within the discretion of our courts.

The investigation of complaints against this class of medical law-breakers has been conducted under my personal supervision by men and women of good morals and who have come recommended to me highly as to their integrity in every particular. To be sure, there are unpleasant features develop many times in the conduct of their investigations and discussions necessarily incident thereto, which would not be expected to be a topic of conversation for the drawing-room; yet, I have never continued a single individual in my employ, either man or woman, who I have not felt sure were only allowing such discussions as are ordinarily carried on in a reputable physician's office, and all of such employees have been instructed under no conditions to endanger their health or to permit any improper acts to be committed, nor to subject themselves to indignities under any conditions.

During this period I have caused to be investigated upward of eight hundred complaints. Still, I must confess that the results of the work are not satisfactory, though the criticism to be inferred from the opinion of the distinguished jurist cannot be accepted nor allowed to go unchallenged. The fact that in our State the Association making the charge and securing the conviction receives the fines imposed, is unsatisfactory in its results, though it seems almost impossible that these great organizations could carry on this work on account of its enormous expense, without the assistance which these fines afford.

The conduct of these prosecutions must be continued by medical organizations and with paid men and women acting as detectives to secure the evidence; the police department of our cities is wholly inadequate, but the law must be amended making the crime of the illegal practice of medicine a more serious one in the eye of the law before these charlatans can be brought to realize the enormity of their offenses. Public opinion must demand of such of our daily newspapers as publish the advertisements of these mountebanks that they are no longer to expect the aid of the reputable press, and with co-operation in this direction, together with a revision of the law, is the hope of stemming the tide of increasing violations of the medical law. Respectfully.

James Taylor Lewis,
Counsel, The New York State Medical Ass'n.
New York, Sept. 19, 1905.

Cholera.—Six new cases and one death were reported in Prussia as the record for the twenty-four hours ending at noon September 20.

SOCIETY PROCEEDINGS.

AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS.

Eighteenth Annual Meeting, held Sept. 19, 20, and 21, 1905.

The President, Howard W. Longyear, M.D., of Detroit, Mich., in the Chair.

The Association met in College Hall of Hotel Astor, New York City, and after an address of welcome by Dr. Geo. B. Fowler, of New York, which was responded to by Dr. Charles A. L. Reed, of Cincinnati, proceeded with the reading of papers.

Multiple Pregnancy Complicated by Double Pyosalpinx.—Dr. O. H. Elbrecht, of St. Louis, Mo., read a paper with this title and reported an interesting case in detail. The most striking feature of this case was the obscurity of this fortunately rare complication, for without the autopsy he would certainly have abided by his first and only ante-mortem diagnosis, *i.e.*, sapremia, and would have continued to believe that the general peritonitis was the result of the sapremic infection traveling upward through the tubes and thus into the abdominal cavity, for such a process to his mind would be all the more plausible in the large and flabby uterus of multiple pregnancy, more especially from the fact that large blood clots were passed on the first day, showing the relatively imperfect contraction of the uterus. The case also shows very plainly the ability or the degree of tolerance of the pelvic peritoneum to cope with infections, as it is his opinion that the peritonitis was not general until the sixth day, for up to that time there was no hiccoughing, no vomiting, no abdominal distention and no apparent weakness. Another deduction is that gonorrheal peritonitis, while not very dangerous, if confined to the pelvic peritoneum, is surely dangerous when it creeps out of the pelvis and becomes diffuse. It is also his firm belief that the pyosalpinx in this case was unilateral at the time of impregnation, and that the infection was transmitted by the escape of virulent pus to the open fimbriæ of the unaffected side. The only cases he could find analogous to his have been reported by Hare and Talley. The reports of two pathologists in the speaker's case, who worked independently of each other, both showed that the tube, which was secondarily infected, was infected by way of the fimbriæ, as its pathology was confined entirely to its outer third; the middle third showed only slight inflammatory changes, and the inner third, including the uterine attachment, was normal.

Blank projects the theory that virulent bacteria in the tube have a tendency to become pyosalpinx during pregnancy by reason of the hyperemia. He further states that 50 per cent. of those cases in which the tubes are adherent in the cul-de-sac rupture as pregnancy advances, from tension, pressure, or from stretching of the adhesions, which forces pus out of their fimbriated extremity. The experience of the essayist with three cases of this class substantiates Blank's theory. These three cases were reported.

Dr. Charles A. L. Reed, of Cincinnati, Ohio, in the discussion, said that this case, with the pus tube undetectable, only adds one possible condition that points to the reason why possibly these cases should be subjected to operation earlier and more radically than they have been heretofore. With a double pus tube, with antecedent conception, it follows that the deduction of the essayist, that the infection of the tube was unilateral prior to impregnation was absolutely incontrovertible. As to infection on the other side, the probabil-

ity is that it resulted from a progressive invasion of tissue, the mucous structure serving as a nidus of infection occurring within the uterus following delivery.

Dr. Herman E. Hayd, of Buffalo, N. Y., is inclined to believe that we see many cases of pyosalpinx complicating delivery that are due to a latent gonorrhea existing in the tube, which springs into activity as a result of the trauma incident to labor.

Dr. Charles L. Bonifield, of Cincinnati, Ohio, believes many cases of double pyosalpinx clear up sufficiently to allow the patients to become pregnant. In years gone by he told patients they would never become pregnant when he detected a mass on each side, and there were further evidences of pyosalpinx, and on a few occasions he has been deceived after six, eight or twelve years, the pus having become absorbed and the women having become pregnant. He cited a case he had many years ago of double pyosalpinx, or he thought it was such. The woman refused operation. Everything in the pelvis was matted together. She gradually got better, and at the end of six or eight years became pregnant, and he delivered her. She passed through labor nicely, but at the end of a week she suddenly raised herself in bed and dropped over dead.

Dr. Rufus B. Hall, of Cincinnati, Ohio, does not believe that a woman with double pus tubes can afterward become pregnant. If such a woman should become pregnant he would be inclined to doubt the diagnosis of bilateral pyosalpinx.

Dr. John Young Brown, of St. Louis, Mo., thinks the mere existence of pregnancy in the case narrated by the essayist precludes the possibility of the woman having had bilateral pyosalpinx. The pathology, as revealed by the autopsy, shows conclusively that the case was one of unilateral pyosalpinx, which was dormant and lighted up by the trauma of labor, and that the leakage from the pus tube produced the diffuse peritonitis, and the condition found on the other side was due to bathing this side with the pus that was produced by the peritonitis.

Dr. Lewis S. McMurtry, of Louisville, Ky., said abdominal section in a puerperal convalescent is a very serious procedure. The operation of vaginal incision and drainage, so enthusiastically advocated by Pryor, would accomplish very little in a case like the one reported from the standpoint of therapeutics; hence in the case reported, we have a very valuable addition to the scanty literature of the subject as to the possibility of pathology of the tubes connected with puerperal disease and a valuable guide to operative interference.

Some Considerations on the After-Management of Abdominal Sections.—Dr. Walter B. Chase, of Brooklyn, N. Y., said, in reviewing his personal experience, he is led to the conclusion that the principal and by far the most frequent condition after laparotomy requiring treatment is flatulence. The accumulation of gas in the intestinal tract is present to a greater or less extent in a majority of cases. The principal causes are reversed peristalsis, intestinal paresis, and the effect of the anesthetic itself. He seldom gives anodynes, except in conditions of pain, making a possible exception in cases when peritonitis was present prior to the operation, or other structures involved in the operation were so friable that peristalsis should be prevented for a time, or in cases following intestinal anastomosis. Its administration for the relief of pain is admissible and perhaps mandatory. It is a matter of much moment what anodyne is selected. Ordinarily he uses codeine hypodermatically in doses of gr. ¼ to ½, or more, if required. While its power to relieve pain and check peristalsis is much inferior to that of morphine, its lesser disturbance of the nervous system, checking of secretion, and tendency to undue constipation makes it an agent of great value. It is imperative that a reliable preparation be used. In troublesome cases of continued nausea the administration of small doses of cocaine, gr. 1-10 to 1-12, exercises a salutary sedative influence on the nerves supplying the stomach, and is attended with happy results. Either the nausea or flatulence, or both, may disappear in a few hours after operation. Among the newer remedies for the relief of intestinal paresis is the alkaloid of the calabar bean. Salicylate of physostigmine, given in doses of gr. 1-100 to 1-50, or even more, hypodermatically, repeated once in four hours, seems to induce a powerful contraction of the circular fiber of the intestinal tract. The diet of patients after abdominal section calls for the greatest circumspection, always following the rule that nourishment, taken per orem, before the stomach retains or digests it, is positively harmful. When shock is profound, minute doses of morphine sulphate are among the most powerful stimulants, and superior to most for prompt and sustained effect. The author discussed at length the importance of bodily temperature and position of patient after laparotomy.

Some General Principles in Conservative Pelvic Surgery.—Dr. John F. W. Whitbeck, of Rochester, N. Y., said it is decidedly advantageous to have a general knowledge and a general experience before making use of special methods in the treatment of pelvic disorders. Medical and mechanical means should be tried in suitable cases before resorting to surgical intervention. Only diseased organs should be removed. Sound organs and normal parts of healthy organs should be preserved. Conservative plastic surgery should be employed to save such organs as can be made functional, or to serve some useful purpose. Diseased organs should be removed in the order of their pathological precedence and importance, with a view to benefit the patient by promoting her comfort and prolonging her life, even if a perfect cure is not to be expected.

Trivial Pathological Conditions of the Uterus and Adnexa Considered as Causes of Severe Gastric Disturbances.—Dr. Francis Reder, of St. Louis, Mo., said that during the last two years eight of these patients came under his observation, six of whom presented a train of symptoms that would ordinarily be grouped as those of hysteria or neurasthenia, moderately severe in character, the remaining two patients being free from any such pronounced neuropathic phenomena, and some in fairly good health, with the exception that their stomachs were weak. The pelvic organs upon examination gave evidence of disease, and although the examination did not reveal anything of a serious nature, yet local minor surgical procedures afforded relief. In the cases cited by the author, it was a surgical procedure that anticipated the pathological conditions. He said to wait for pathological conditions to give evidence of their existence by more pronounced local symptoms in gynecological disease, where there is a marked reflex neurosis, would be to invite secondary conditions that might prove of a very grave nature.

Dr. Rufus B. Hall thought the case reported by the essayist had pathological conditions sufficiently marked to justify operation regardless of their neurotic condition. To cure nervous patients it is sometimes necessary to remove overy obstacle in the way of perfect health physically. He is convinced that if many of these cases had not been operated upon, their condition would have become worse, a more grave pathology would have resulted later, and it would have been more trying for the patients, thus making the surgery more

difficult, and harder for the patients to recover from the operation.

Dr. X. O. Werder, of Pittsburg, is not enthusiastic about operating on neurotic patients, as the results are not usually good, and he feared the essayist would have some of the patients upon whom he had operated return in a few months with the same symptoms having recurred.

Prolapsis Uteri and Its Treatment.—Dr. Herman E. Hayd, of Buffalo, N. Y., briefly spoke of the various conditions which contributed to the production of prolapsus uteri and then immediately discussed its treatment by surgical means only, and according to the degree of the descensus and the necessity for the preservation of the uterus, the operative treatment was carried out. He believed that in minor degrees of prolapsus uteri with rectocele and cystocele, the Alexander operation with well directed plastic surgery of the vagina and perineum would cure these simple forms. When the prolapsus extended to the introitus, or the cervix pointed through the vulva, a vaginal hysterectomy, with a well-performed anterior and posterior colporrhaphy and a perineorrhaphy accomplished the best results; and the effect was permanent if the vault of the narrowed vagina was sewed firmly permanent to the cut edges of the broad ligament. When it was desirable to save the uterus for the purpose of child-bearing, or to continue the function of menstruation, the cervix must be amputated and an anterior and posterior colporrhaphy and perineorrhaphy must be performed, and the uterus firmly ventrofixed to the abdominal wall through a median abdominal incision. Usually all these operations could be performed at one sitting, but if it was desirable to make two operations, the posterior colporrhaphy and perineorrhaphy must be done at the second time, say three weeks after the first operations. The author, however, preferred the removal of the uterus, as this operation had been infinitely more successful in his hands. He also depreciated the performance of all operations which closed the vagina, as he believed this unnecessary and because he had seen much unhappiness result from this procedure. For the extreme cases of pelvic hernia, he was particularly pleased with a reprint sent him by Dr. Crile, in which he advocated a very elaborate and extensive operation. For one such case, which occurred in his own practice, he sewed the united vagina and broad ligaments to the abdominal wall, and the result was very satisfactory. However, such extreme measures were seldom called for, as most cases could be cured by the other operations described. Dr. Hayd then detailed his operation upon the posterior vaginal wall and perineum, in which he cut out a large triangular piece of the posterior central part of the vagina, and then with the finger in the rectum as a guide to make tense the obturator fascia and levator ani muscle, he sewed these opposing structures in perfect apposition, with fine chromic gut, which layer of sutures was buried by bringing together the vaginal mucous membrane by another layer of sutures, and finally the skin was brought together by silkworm gut. This operation lessened the size of the vagina and lengthened it by producing an oblique canal instead of a horizontal one, and by carefully approximating the fascia and levator ani, the *sine qua non* of all perineal operations, the result remained fixed and permanent.

Surgery of the Liver.—Dr. William J. Gillette, of Toledo, Ohio, read a paper on the subject in which after discussing the control of hemorrhage, the power of the liver to regenerate itself, infection and cholemia, he described a means of controlling liver hemorrhage in certain cases of severe bleeding when the blood vessels cannot be easily reached. It sometimes happens that to tie them requires a further enlargement of the lacerated liver substance. This of itself increases the gravity of the patient's condition. Three years ago he was called in haste to see a young girl of fourteen years, who had been shot by a target gun, the bullet entering between the eighth and ninth ribs, near the costal cartilage, and passing through the right lobe of the liver, lodging behind the stomach. The low velocity of the bullet had caused it to make a tear rather than a perforation. When first seen the child was nearly pulseless, and had all the evidences of a severe internal hemorrhage. Her face and lips were white and bloodless. The abdomen was opened. An incision was made close and parallel to the costal cartilages on the right side. The abdomen was found full of blood which could be seen freely oozing from the torn liver. He attempted to control this first with catgut ligatures, but the friability of the tissues prevented. Some time previously he had had an experience with a similar wound of the liver made by a bullet, and had attempted to control the hemorrhage by packing with gauze; but the patient, a strong, robust man, had promptly died from the continued loss of blood. Post-mortem revealed that the gauze packing had been entirely inadequate to control it. Having this case in mind, he did not feel like trusting to gauze again, and inasmuch as it was not controlled by direct ligation, it occurred to him that by passing sutures from within, entirely through the liver substance and through the abdominal wall, making exit between the ribs after the manner of a staple, and tied firmly on the cutaneous surface, that permanent and constant pressure could be made, sufficient to control the hemorrhage without the ligature cutting into the friable liver tissue. Five or six such sutures were now introduced on the proximal side of the wound, each one embracing about three-quarters of an inch of the liver substance. Care was taken to link them together so as to include all the bleeding tissues in their bite. The ligatures emerged between the ribs the same distance apart as they were entered on the liver substance, and when firmly tied all the hemorrhage and oozing ceased at once. Other injuries to the viscera, which were slight, were repaired, a drainage tube inserted, and the abdomen closed. The patient made an uninterrupted recovery. He has since used this suture in two instances, in one of which in removing a very adherent gall-bladder he met with a severe hemorrhage, which was readily controlled with it. Recovery was prompt. The third case was one in which a hydatid cyst, the size of a small cocoanut, was removed, together with a large number of gall-stones from a suppurating gall-bladder. This patient unfortunately died from peritonitis a few days later, but the hemostasis was perfect. The author referred at length to the more recent contributions to liver surgery.

Papillary Cyst Adenoma of the Breast.—Dr. Edward J. Ill, of Newark, N. J., says that this disease is comparatively rare, but that he has seen eight cases in his practice. There is not very much literature about the disease. Its characteristic symptoms are a clear yellowish-pink to dark bloody discharge from the nipple. On palpating the breast a small tumor can be made out early in the disease, which may become multinodular later on. He has

observed cases for from a few weeks to eleven, twelve and twenty-one years. The pathological condition found is a papillary adenomatous mass projecting into the milk duct. It is non-malignant in character. The patient may get well without any interference. When the disease persists, he advises removal of the breast.

Dr. Miles F. Porter, of Fort Wayne, Ind., said that cystadenoma of the ovaries and other organs is prone to become malignant, and no one could tell whether the tumor is malignant or not until he has removed it. Some of these tumors are pronounced to be non-malignant by microscopists, but there is recurrence after operation. Others are pronounced malignant, but the disease does not return after operation.

Dr. Joseph Price, of Philadelphia, has never regretted the early removal of tumors of the breast for fear they might become malignant. He cited cases in point.

Dr. Gunther, in closing the discussion for Dr. Ill, said these patients are not aware they have a tumor. If they have a tumor it is very small. There is no involvement of the axillary glands, and they seek medical advice principally on account of the discharge mentioned from the nipple. The history and symptoms in these cases are sufficient to exclude malignancy.

The Byrne Operation and Its Application in the Radical Treatment of Cancer of the Cervix.—Dr. X. O. Werder, of Pittsburg, Pa., described the operative technic employed by Byrne, and said that Byrne places special stress on the importance of thorough and repeated cauterization of the wound surfaces and edges from which cancerous material has been removed, regarding it as the best safeguard against a recurrence of the disease. The most remarkable feature of the Byrne operation, when compared to all other operations undertaken through the vagina for the cure of cancer of the cervix, and one which seems to justify Byrne's conclusions, is the almost uniform absence of local recurrence. While employing the method described by Byrne in his first cases, he invariably followed it by the ablation of the remaining portion of the uterine body and appendages. Subsequently, however, he simplified the procedure very materially by dispensing with the preliminary amputation of the cervix in order. The principal features of the Byrne operation have been retained, namely, thorough and repeated cauterization of all wound surfaces and edges. The operation differs from the usual vaginal hysterectomy by the use of the cautery knife for detaching the cervix from its vaginal connections; the application of the electro-thermic clamps devised by Downes, and the final cauterization of the stump with the dome-shaped cautery. He described the technic as he employs it at the present time. Of the sixteen cases operated upon by him, only one died about four weeks after the operation, from uremia. She is supposed to have suffered from nephritis for ten years previously; the operation, he thinks, may have hastened, but not caused, her death.

(To be Continued.)

A Distinguished Japanese.—Dr. Suzuki, Surgeon-General of the Royal Japanese Navy, is at present a visitor to America. He attended as a special guest of honor the recent meeting of the American Association of Obstetricians and Gynecologists in New York.

THE AMERICAN THERAPEUTIC SOCIETY.

Sixth Annual Meeting, held May 4, 5 and 6, 1905.

Vice-President John V. Shoemaker, of Philadelphia, in the Chair.

The Therapeutic Art.—Dr. Oliver T. Osborne said therapeutics was a much-neglected science and one that deserves especial study and discussion in the medical schools. Without the final application of therapeutics, all scientific physiology, etiology and pathology of the world are of no value. Therapeutics, he said, arrests the etiology which produces the disease, helps physiology which is disturbed by the disease, and removes the pathology which is produced by the disease. To-day the educated physician rarely speaks of curing the disease; he prefers the term "manage," and leaves the term "cure" to quacks and nostrum venders. The management includes diet, hygiene, climatic water, electricity, if indicated, and the necessary drugs. He ventures the opinion that graduates in medicine even after a hospital training are less prepared in the bed-side management than in any other branch of medicine; for that reason each medical school should have a special chair of therapeutics, held by a clinical man, a specialist in internal medicine.

The Effects of Intravenous Injections of Ergot on the Mammalian Circulation.—Drs. Torald Sollmann and E. D. Brown, of Cleveland, O., prepared this paper. Owing to the absence of both Dr. Sollmann and Dr. Brown the paper was read by Dr. Morgan, of Washington, D. C. The principal results of their investigations show that the rise of blood pressure produced by ergot in dogs is insignificant or too short for any practical purpose; that its effects are cardiac rather than vasomotor. They do not believe that the drug is useful to modify the general circulation. It acts upon vascular areas and alters the distribution of the blood in individual organs. This, they say, might explain the efficiency which is claimed for the drug in certain obscure diseases. They made some 350 injections in 38 animals. The injections were first made into the muscles, but the results were poor, so that intravenous injections were then tried.

In opening the discussion of this paper Dr. F. P. Morgan, of Washington, D. C., stated that ergot was beneficial to produce contraction of the uterus and to check hemorrhage. In his opinion it should not be employed in labor cases until the child and the placenta are expelled. He maintained that if postpartum hemorrhage is well advanced ergot is inefficient. He finds ergot useful in menorrhagia and subinvolution of the uterus.

E. D. Fisher, of New York City, informed the members of the society that he has seen good results in some cases of tic douloureux follow the injection of ergot hydermatically.

Dr. C. T. Osborne said that he always injected the ergot into the deltoid, using the same muscle for each injection and applying a wet dressing after the introduction of the drug to prevent infection. He finds the drug of value in cases where the heart action is weak, and in such cases in which there is a tendency to edema of the meninges, or in delirium due to toxins. He believes ergot must have some effect upon the vessels of the nervous system for recurring headaches are benefited by its use. Dr. R. Reyburn, of Washington, D. C., finds ergot valuable in women suffering with headaches about the time of menopause. Dr. S. Solis Cohen, of Philadel-

phia, finds this drug beneficial in those individuals who believe they are suffering with a lesion of the heart, but merely have an intermittent pulse.

The Proper Sphere of Bromides in Epileptics.—This paper, by Dr. Frederick Peterson, of New York, was read by Dr. E. D. Fisher. Dr. Peterson announced that he is convinced that more epileptics are injured than are cured by the use of the bromides. He depicted some of the symptoms which, he said, are produced by this drug; he informed the society that the bromides produce some of the forms of insanity, especially melancholia. If it must be used small doses should be combined with antipyrin or some other similar drug. He is firmly convinced that outdoor exercise and a regulated diet are of great value, and maintains that ten per cent. of the cases sent to a farm or colony are cured.

In opening the discussion Dr. Fisher said he was not such an enthusiast in regard to the colony treatment, as he has seen epileptics go to those places and return without the slightest benefit. Although much attention should be paid to hygiene, yet he does not believe that the bromide treatment can be abolished, and he knows of no drug which can take its place. He has seen it used by a patient for twenty years without the slightest deleterious effect. He strongly inclines to the view that there is a pathological lesion in the brain in epilepsy because of the identity of the aura and the course in each recurring attack.

Dr. Cohen, of Philadelphia, stated that much of the depression which follows the use of potassium bromide is due to the potassium. Dr. O. T. Osborne, of Yale University, maintained that a better knowledge of the thyroid and of the parathyroid might throw some light upon the conditon of epilepsy; probably in this disease a symptom only is being treated. He does not believe large doses of the bromides are necessary and sodium chloride should be eliminated from the diet. Dr. A. J. Hall, of Washington, D. C., favored the use of the bromides. Dr. R. Reyburn believes the nitrogenous diet should be cut down as low as possible in epilepsy.

The Management of Chronic Parenchymatous and Chronic Interstitial Nephritis.—Dr. S. Solis Cohen, of Philadelphia, first outlined the types of this disease, the causes and the complications. In America he regards the "strenuous life" as an important cause of the disease. As the first item in the management he spoke of the hygiene, then of the diet, mentioning milk as a therapeutic element. The next food stuff after milk, that these patients may take, is eggs. In the chronic interstitial nephritis he finds meat necessary, but in the parenchymatous it should be avoided. Green vegetables, except those that produce much calcium oxalates, may be given. He mentioned clothing as very important. These individuals should have a moderate amount of exercise with rest, but if too feeble massage will act as a substitute. The amount of urea excreted must be watched, as this element is an index to the accumulation of that substance in the econmy which induces uremia. He finds two drugs of especial value to increase the amount of urea, viz., stromtium and aconite; of the two he prefers stromtium bromide. He finds aconite better than nitroglycerin, and although the strontium lactate will produce a greater excretion of the urea than the strontium bromide he prefers the latter because of some unknown action. He is not inclined to use the nitrites in chronic interstitial nephritis with hypertrophy of the heart, except in small doses. If the chloride of gold and sodium, in doses of 1-24 of a gr., are given in chronic interstitial nephritis for long periods of time, good results are obtained. Uranium nitrite will cause the albumin to disappear which persists in the urine of cases of diabetes mellitus after the sugar is no longer present.

In opening the discussion of this paper Dr. Judson Daland, of Philadelphia, referred to the frequency with which nephritis follows attacks of influenza, without giving rise to symptoms; he also referred to the forms of the parenchymatous nephritis which are clearly incident to intervening attacks of intestinal and hepatic intoxications. The rise in arterial pressure may be due to some toxine, the nature of which is still obscure, and to remove this substance from the economy he advises the use of hot baths which are so easily regulated. He has not seen the beneficial results from digitalin secured by Dr. Cohen.

Dr. T. E. Satterthwaite, of New York, stated that he has seen the amount of albumin in chronic interstitial nephritis reduced by the administration of nitroglycerin, and has found digitalin a useful diuretic. He explains the variation in the results obtained by different investigators by the idiosyncrasies to the drug. He referred to a series of investigations on dogs, in which variation in the results were obtained. Dr. Osborne is not favorably impressed with the use of digitalin.

Medical Treatment of Serous Effusions.—Dr. Thomas L. Coley, of Philadelphia, in discussing this subject, called attention to the importance of the study of osmotic disturbances and to the opinion of Loeb and others that this is of greater importance than the mechanical factors of blood pressure. He pointed ont the significance of the study of sodium chloride excretion and retention to the relation of the edemas as having a direct bearing on the dietetic treatment. He laid stress upon the value of sialogogues in selected cases and the dangers of diaphoresis in skin edemas; this process removes the watery portion of the edema, leaving the solid material in a more concentrated form and with consequent more toxic properties. The limitations and applicabilty of diuretics was discussed especially of calomel, caffeine, theobromine and digitalis.

Value of Physiological Salt Solution in Circulatory Failure.—Dr. H. C. Wood, Jr., of Philadelphia, said that from the results of his experiments he is convinced that by the introduction of from 750 cc. to four times the normal amount of blood in a normal animal the arterial pressure is not influenced. After bleeding these animals until the heart beat was now no longer perceptible the introduction of the salt solution causes the arterial pressure to rise, but it is transient only, for the animals soon die. He found that the escape of the fluids from the body through the kidneys is not nearly so rapid as is suspected, although the introduced fluid above the normal amount of blood in the vessels does not remain in these structures, but he believes it escapes into the tissue spaces where it remains until used, although he could not demonstrate subcutaneous edema during life; at autopsy he found edema of the peritoneum and mesentery and pulmonary edema. By the introduction of the physiological salt solution he could not reduce the hemoglobin below 50 per cent.; the hemoglobin of a dog which before the experiment was 115 per cent. was by section of the cord reduced to 100 per cent., then by the introduc-

tion of salt solution to 60 per cent.; some time after the experiment it was again examined when it was found to be 60 per cent., by the injection of a second lot of fluid the hemoglobin would not be reduced below 50 per cent. He finds that the temperature of the solution in the reservoir and where it enters the vein differs from 5° to 15° C., but he has demonstrated to his satisfaction that the difference in the temperature produces very little if any effects.

In opening the discussion upon this paper Dr. Robert T. Morris, of New York, informed the society that by the introduction of salt solution into the veins of a septic patient he expects to see the temperature drop and his patient improve. If the bleeding is slow in extrauterine pregnacy he does not use the salt solution, but if shock is present and the hemorrhage is rapid he gives the fluid before the operation, and if in any operation he anticipates much hemorrhage he prepares to introduce the salt during the operation.

Clinical Experiences with Certain Drugs in Heart Disease.—Dr. Thomas E. Satterthwaite, of New York, read this paper. During the course of the paper the author stated that adrenalin is the most powerful heart stimulant that is known. It increases the pressure immediately, and he has found that a single dose sometimes relieves palpitation at once. For heart failure he uses nitroglycerin, but if this drug produces throbbing in the temporal arteries he regards its use as dangerous, for it may give rise to apoplexy. He finds iodine a useful drug in arteriosclerosis of syphilis and of old age; it dissolves the hyperplastic tissue. He begins with a preparation containing ½ gr. of iodine and then gradually increases the dose to 2 grs. This drug may be given in acute simple endocarditis and even in acute malignant endocarditis. The edema and the dyspnea and pain due to heart disease of the aged are relieved by the administration of 1-200 gr. of arsenic. Strychnine is slowly absorbed and slowly eliminated and should not be given for a period longer than two weeks. Strophanthus, he says, accomplishes better results than digitalis; its action lasts for several days; it is not cumulative, but it is not so reliable as digitalis. Sparteine reduces the frequency of the pulse and increases the pressure, but it is not as valuable a diuretic as digitalis. He depends a good deal on camphor which is a diffusible stimulant, an antispasmodic and a sedative. He is convinced that moderate doses of digitalis may produce death, but if this drug be combined with the nitrites the danger is eliminated.

In opening the discussion on this paper Dr. Osborne declared that in heart disease the arterial system must be studied as much as the heart, if not more. He regards an alterative as a drug that in some way modifies the internal secretion. While speaking of the internal secretions he quoted the phrase, "We are as old as our arteries"; but added, "Our arteries are as old as our thyroids." Digitalis has been used too much, he said; strophanthus is better. Adrenalin should be administered with care, for, if pushed, depression, perhaps cardiac, sets in. He believes much of the digitalin on the market is really digitoxin. Wilcox, continuing the discussion, noted that the action of adrenalin was first upon the vessels which embarrasses the heart to a certain extent. Cactus is the only drug that acts upon the ganglion of the heart. Porter lauds benzoic acid and the caffeine salts as heart stimulants. Fowler believes in the combination of several drugs as a heart stimulant. H. C. Wood, Jr., informed the society that single doses of adrenalin has produced pulmonary edema and an excessive use of this drug gives rise to arteriosclerosis. Cohen suggested that the drug was not used long enough to produce the conditions referred to by Wood. Coley states that nitroglycerin should be given in small doses and often because of its transient effects. Shoemaker spoke of the misuse of strychnine and digitalis and of the efficiency of scoparius in dropsy.

Practical Medical Treatment.—Dr. John V. Shoemaker, of Philadelphia, spoke of the benficial results obtained from the galvanic current in the treatment of enlarged prostates and locomotor ataxia. It, of course, does not cure either condition, but the improvement is marked. He exhibited a case of xanthoma which has been benefited by blood tonics, and a case of alopecia areata treated with electricity and blood tonics.

Dr. E. B. Bronson, of New York, opened the discussion and stated that xanthoma is very frequently associated with diabetes mellitus. In the treatment of alopecia areata he uses sulphur, resorcin and naphthol.

The Recogniton and Treatment of Cholecystitis.—Dr. Robert T. Morris, of New York, maintains that the significance of the adhesions in the region of the gall bladder have been overlooked; they are produced as a result of the desquamation of the endothelial cells incident to the presence of the *Bacillus coli communis*, which, he said, escapes through the thin-walled gall bladder. Gastralgia and intestinal disturbances may be due to eye-strain, normal involution of the appendix, gall-bladder disease and adhesion in the pelvic organs. To differentiate these conditions he finds the following a very useful aid: If the gastric or intestinal distress is due to pelvic adhesions the ganglion on each side of the umbilicus is tender; if due to involution of the appendix the ganglion on the right side alone is tender, and if due to eye-strain neither is tender. In cholecystitis the temperature ranges from 99.5° to 98° F.; this variation in temperature is due to the adhesion dragging on the sympathetic ganglion. To prevent adhesions he uses powdered aristol or Cargile membrane.

Dr. John B. Deaver opened the discussion and said that in his opinion medical men should not attempt to cure gall-stones, and he does not see any beneficial results from the treatment at Carlsbad.

Dr. Carl Beck took an opposite view, and said the medical treatment should be tried first, and he does not believe that the gall-bladder should be removed in all cases of gall-bladder disease.

The Treatment of Intestinal Indigestion.—Dr. George B. Fowler, of New York, attributes the cause of indigestion both to the quality and to the quantity of the food. He mantains that there is no difference in the digestive quality of stale and fresh bread, and that rice and hominy do not tend to provoke fermentation. He does not allow his patients rich soups, steak, pork, chicken or turkey from storage houses, white potatoes (fried), sweet wine, cooked oysters, cheese, kidney, liver and cooked tomatoes. Intestinal indigestion is rarely present alone; therefore he always examines the mouth, nasopharnyx and the stomach. If the intestinal disturbance is due to alterations in the nervous system he prescribes the triple valerian or cannabis indica. He also spoke of the value of hydrotherapy in this disease.

Treatment of Chronic Diarrhea.—Reynold Webb Wilcox, of New York, said if the diarrhea be due to some mechanical irritation he frees the intestinal canal of the substance by the administration of a dose of castor oil; but if the condition is due to fermentation he gives hydrochloric acid. Increased peristalsis of the small intestines does not produce diarrhea. He employs adrenalin chloride if the stools are of a serous type, and ammonium bromide in the nervous types of diarrhea. To those types of diarrhea which he terms "neurotic," and due to hysteria, neurasthenia, migraine and the climacteric, he gives strontium bromide and later potassium arsenite, and to those which he terms "hemic" due to uremia and malaria, he gives arsenic, methylene blue and ergot. Opium should never be given to these patients unless the intestinal canal is empty, and only to check excessive peristalsis. The diet for patients suffering with chronic diarrhea should be milk.

Dr. D. O. Leech, of Washington, D. C., in discussing these two papers, stated that he gave liquids before or after and not during a meal because the gastric was diluted more than it should be.

Rectal Alimentation.—Dr. William H. Porter, of New York, maintains that small amounts of albuminous substances are absorbed in the rectum, but very little sugar or starches. This form of feeding may be employed when the stomach is partially disabled, but to him it is unsatisfactory.

In the discussion Dr. R. Reyburn maintained that when the patient is ill the economy needed much less food, and that the amount taken through the rectum may bridge him over to such a time when the food can be administered through the mouth. He never feeds by rectum oftener than six hours, and believes it better to do so every eight hours.

Etiology and Treatment of Infantile Atrophy.—Dr. John Blake White, of New York, in discussing this topic, takes the ground that the atrophy is due to disorders of assimilation and absorption, and that the enteritis is a secondary condition. He advised the use of warm baths, massage, outdoor exercise, cod-liver oil and strychnine nitrate 1-200 gr. He also spoke of the use of intestinal antiseptics, as guaiacol carbonate menthol, and of the use of thymus extract which exerts some influence on bone structure. He suggested the use of radium, the chloride of gold and sodium and, if the patients are tuberculous, manganese.

Notes on the Treatment of Hay Fever and Asthma.—Dr. Charles H. Knight, of New York, laid great stress upon the examination of the nasal cavities and the pharynx in all cases of asthma. In the treatment of hay fever he has found Dunbar's serum of value in some of the cases, but condemns the use of cocaine, and is not greatly impressed with adrenalin. He has used Clark's solution with some success.

Prophylaxis of Pneumonia.—Dr. James M. Anders, of Philadelphia, first spoke of some factors instrumental in propagating the disease, as close confinement, exclusion of light, individual predisposition and the bacteria-laden clothing of both the sick and healthy. Then he took up the prophylaxis, calling attention to the protection of individuals from barometric changes, from pneumonic patients and to excessive use of clothing, also to the correction of the mode of American living. The weak during an epidemic, he maintains, should have tonics and strychnine; lesions in the air passages must be attended to, in order to prevent mouth breathing and the sleeping-room must be well ventilated. He dealt with disinfection of the sputum both the healthy and the diseased, of the sprinkling of asphalt streets, and of the use of antiseptics, which should always be preceded by thorough cleansing of the mouth. He condemns the expectoration into cloths which are then burned. Pneumonia should be placed on the list of reported diseases, the regulation of the pneumonic patient should be under municipal government; he also laid stress upon the ventilation of all public places.

Recognition and Treatment of Pancreatic Disease.—Dr. Carl Beck, of New York, in taking up this question, pointed out that in pancreatic inflammations fat is present in the feces and sugar in the urine. The character of the pain is not a reliable sign. He referred to the sudden pain, the collapse, the constipation and the vomiting, none of which is pathognomic for the disease; in the subacute inflammation the symptoms are less severe. The chronic form may be due to bacteria, syphilis, arteriosclerosis, hepatitis, injuries and to gastric disturbances. In this type abuminuria and glycosuria are usually present; there may be constipation or diarrhea or vomiting. He favors operation in all cases where hemorrhagic pancreatitis is suspected, and uses hot irrigations, and packs with iodoform gauze. When the pancreatitis is due to cholecystitis operation upon the latter condition will cure the former.

Management of Injuries to the Knee-joint.—Dr. DeForest Willard, of Philadelphia, first dealt with sprains for which he advised ice and rest in the acute stage and later heat, if the fluid exudate is large aspiration is necessary. When he dealt with dislocation of the semilunar cartilages he recommended reduction by manipulation first, and if dislocation recurred operation. If the pain in passive motion is too severe the condition can be greatly aided by the use of heat. Sensitive joints are often the result of trauma, but may be hysterical; to this condition he applies the term "anklyphobia." When blood clots exist the joint should be opened and the foreign substance removed. He recommends that passive motion be begun as soon as the chronic stage is reached.

Value of the Correction of Errors of Refraction in Psychoses.—Dr. E. D. Fisher, of New York, did not read his paper because the time was too short, but said that in his opinion epilepsy is not relieved by the correction of errors of refraction; he does not mean to imply that these defects should not be corrected, however.

Treatment of Incontinence of Urine in Children.—Dr. Noble P. Barnes, of Washington, D. C., said in the treatment of this condition stress should be laid on the diet, the training of the child to retain the urine for a certain number of hours, the outdoor exercise and the cold bath to be followed by thorough rubbing. For highly acid urine only are drugs in this condition of any value, and then he gives atropine and strychnine.

BOOKS RECEIVED.

Surgical Diagnosis. By Dr. O. G. T. Kiliani. 8vo, 449 pages. Illustrated. Wm. Wood & Co., New York.

Management of Section Cases. By W. J. S. McKay. 8vo, 651 pages. Illustrated. Wm. Wood & Co., New York.

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ORIGINAL ARTICLES.

THE STUDENT LIFE. A FAREWELL ADDRESS TO CANADIAN AND AMERICAN MEDICAL STUDENTS.

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EXCEPT it be a lover, no one is more interesting as an object of study than a student. Shakespeare might have made him a fourth in his immortal group. The lunatic with his fixed idea, the poet with his fine frenzy, the lover with his frantic idolatry, and the student aflame with the desire for knowledge are of "imagination all compact." To an absorbing passion, a whole-souled devotion, must be joined an enduring energy, if the student is to become a devotee of the gray-eyed goddess to whose law his services are bound. Like the quest of the Holy Grail, the quest of Minerva is not for all. For the one, the pure life, for the other, what Milton calls "a strong propensity of nature." Here again the student often resembles the poet,—he is born, not made. While the resultant of two molding forces, the accidental, external conditions, and the hidden, germinal energies, which produce in each one of us national, family and individual traits, the true student possesses in some measure a divine spark which sets at naught their laws. Like the Snark, he defies defintion, but there are three unmistakable signs by which you may recognize the genuine article from a Boojum—an absorbing desire to know the truth, an unswerving steadfastness in its pursuit, and an open, honest heart, free from suspicion, guile and jealousy.

At the outset do not be worried about this big question—Truth. It is a very simple matter if each one of you starts with the desire to get as much as possible. No human being is constituted to know the truth, the whole truth and nothing but the truth; and even the best of men must be content with fragments, with partial glimpses, never the full fruition. In this unsatisfied quest the attitude of mind, the desire, the thirst (a thirst that from the soul must rise!), the fervent longing, are the be-all and the end-all. What is the student but a lover courting a fickle mistress who ever eludes his grasp? In this very elusiveness is brought out his second great characteristic—steadfastness of purpose. Unless from the start the limitations incident to our frail human faculties are frankly accepted, nothing but disappointment awaits you. The Truth is the best you can get with your best endeavor, the best that the best men accept—with this you must learn to be satisfied, retaining at the same time a due humility and an earnest desire for an ever larger portion. Only by keeping the mind plastic and receptive does the student escape perdition. It is not, as Charles Lamb remarks, that some people do not know what to do with truth when it is offered to them, but the tragic faith is to reach, after years of patient search, a condition of mind-blindness, in which the truth is not recognized, though it stares you in the face. This can never happen to a man who has followed step by step the growth of a truth, and who knows the painful phases of its evolution. It is one of the great tragedies of life that every truth has to struggle to acceptance against honest but mind-blind students. Harvey knew his contemporaries well and for twelve successive years demonstrated the circulation of the blood before daring to publish the facts, on which the truth was based.[1] Only steadfastness of purpose and humility enable the student to shift his position to meet the new conditions in which new truths are born, or old ones modified beyond recognition. And, thirdly, the honest heart will keep him in touch with his fellow-students, and furnish that sense of comradeship without which he travels an arid waste alone. I say advisedly an honest heart—the honest head is prone to be cold and stern, given to judgment, not mercy, and not always able to entertain that true charity which, while it thinketh no evil, is anxious to put the best possible interpretation upon the motives of a fellow worker. It will foster, too, an attitude of generous, friendly rivalry untinged by the yellow peril, jealousy, that is the best preventive of the growth of a bastard scientific spirit-loving seclusion and working in a lock-and-key laboratory, as timorous of light as is a thief.

You have all become brothers in a great society, not apprentices, since that implies a master, and nothing should be further from the attitude of the teacher than much that is meant in that word, used though it be in another sense, particularly by our French brethren in a most delightful way, signifying a bond of intellectual filiation. A fraternal attitude is not easy to cultivate—the chasm between the chair and the bench is difficult to bridge. Two things have helped to put up a cantilever across the gulf. The successful teacher is no longer on a height, pumping knowledge at high pressure into passive receptacles. The new methods have changed all this. He is no longer *Sir Oracle*, perhaps un-

1 Delivered before the medical students of McGill College, Montreal, and the students of the Medical Department of the University of Pennsylvania, Philadelphia.

1 "These views, as usual, pleased some more, others less; some chid and calumniated me and laid it to me as a crime that I had dared to depart from the precepts and opinions of all Anatomists." Chapt. I, De Motu Cordis.

consciously by his very manner antagonizing minds to whose level he cannot possibly descend, but he is a senior student anxious to help his juniors. When a simple, earnest spirit animates a college there is no appreciable interval between the teacher and the taught—both are in the same class, the one a little more advanced than the other. So animated, the student feels that he has joined a family whose honor is his honor, whose welfare is his own, and whose interests should be his first consideration.

The hardest conviction to get into the mind of a beginner is that the education upon which he is engaged is not a college course, not a medical course, but a life course, for which the work of a few years under teachers is but a preparation. Whether you will falter and fail in the race, or whether you will be faithful to the end depends on the training before the start, and on your staying powers, points upon which I need not enlarge. You can all become good students, a few may become great students, and now and again one of you will be found who does easily and well what others cannot do at all, or very badly, which is John Farriar's excellent definition of a genius.

In the hurry and bustle of a business world, which is the life of this continent, it is not easy to train first-class students. Under present conditions it is hard to get the needful seclusion, on which account it is that our educational market is so full of wayside fruit. I have always been much impressed by the advice of St. Chrysostom: "Depart from the highway and transplant thyself in some enclosed ground, for it is hard for a tree which stands by the wayside to keep her fruit till it be ripe." The dilettante is abroad in the land, the man who is always venturing on tasks for which he is imperfectly equipped, a habit of mind fostered by the multiplicity of subjects in the curriculum; and while many things are studied, few are studied thoroughly. Men will not take time to get to the heart of a matter. After all, concentration is the price the modern student pays for success. Thoroughness is the most difficult habit to acquire, but it is the pearl of great price, worth all the worry and trouble of the search. The dilettante lives an easy, butterfly life, knowing nothing of the toil and labor with which the treasures of knowledge are dug out of the past, or wrung by patient research in the laboratories. Take, for example, the early history of this country—how easy for the student of the one type to get a smattering, even a fairly full acquaintance with the events of the French and Spanish settlements. Put an original document before him, and it might as well be Arabic. What we need is the other type, the man who knows the records, who, with a broad outlook and drilled in what may be called the embryology of history, has yet a powerful vision for the minutiæ of life. It is these kitchen and back-stair men who are to be encouraged, the men who know the subject in hand in all possible relationships. Concentration has its drawbacks. It is possible to become so absorbed in the problem of the "enclitic de," or the structure of the flagella of the *Trichomonas*, or of the toes of the prehistoric horse, that the student loses the sense of proportion in his work, and even wastes a lifetime in researches which are valueless because not in touch with current knowledge. You remember poor Cassaubon, in Middlemarch, whose painful scholarship was lost on this account. The best preventive to this is to get denationalized early. The true student is a citizen of the world, the allegiance of whose soul, at any rate, is too precious to be restricted to a single country. The great minds, the great works transcend all limitations of time, of language and of race, and the scholar can never feel initiated into the company of the elect until he can approach all of life's problems from the cosmopolitan standpoint. I care not in what subject he may work, the full knowledge cannot be reached without drawing on supplies from lands other than his own—French, English, German, American, Japanese, Russian, Italian—there must be no discrimination by the loyal student, who should willingly draw from any and every source with an open mind and a stern resolve to render unto all their dues. I care not on what stream of knowledge he may embark, follow up its course, and the rivulets that feed it flow from many lands. If the work is to be effective he must keep in touch with scholars in other countries. How often has it happened that years of precious time have been given to a problem already solved or shown to be insoluble, because of the ignorance of what had been done elsewhere. And it is not only book knowledge and journal knowledge, but man knowledge that is needed. The student will, if possible, see the men in other lands. Travel not only widens the vision and gives certainties in place of vague surmises, but the personal contact with foreign workers enables him to appreciate better the failings or successes in his own line of work, perhaps to look with more charitable eyes on the work of some brother whose limitations and opportunities have been more restricted than his own. Or, in contact with a master-mind, he may take fire, and the glow of the enthusiasm may be the inspiration of his life. Concentration must then be associated with large views on the relation of the problem, and a knowledge of its status elsewhere; otherwise it may land him in the slough of a specialism so narrow that it has depth and no breadth, or he may be led to make what he believes to be important discoveries but which have been long current coin in other lands. It is sad to think that the day of the great polymathic student is at an end; that we may, perhaps, never again see a Soaliger, a Haller, or a Humboldt—men who took the whole field of knowledge for their domain and viewed it as from a pinnacle. And yet a great specializing generalist may arise, who can tell? Some twen-

tieth-century Aristotle may be now tugging at his bottle, as little dreaming, as are his parents or his friends, of a conquest of the mind, beside which the wonderful victories of the Stagirite will look pale. The value of a really great student to the country is equal to half a dozen grain elevators or a new trans-continental railway. He is a commodity singularly fickle and variable, and not to be grown to order. So far as his advent is concerned there is no telling when or where he may arise. The conditions seem to be present even under the most unlikely externals. Some of the greatest students this country has produced have come from small villages and country places. It is impossible to predict from a study of the environment, which a "strong propensity of nature," to quote Milton's phrase again, will easily bend or break.

The student must be allowed full freedom in his work, undisturbed by the utilitarian spirit of the Philistine, who cries *cui bono* and distrusts pure science. The present remarkable position in applied, and industrial trades of all sorts have been made possible by men who did pioneer work in chemistry, in physics, in biology, and in physiology, without a thought of any practical application in their researches. The members of this higher group of productive students are rarely understood by the common spirits, who appreciate as little their unselfish devotion as their unworldly neglect of the practical side of the problems.

Everywhere now the medical student is welcomed as an honored member of the guild. There was a time, I confess, and it is within the memory of some of us, when, like Falstaff, he was given to "taverns and sack and wine and methoglins, and to drinkings and swearings and starings, pribbles and prabbles": but all that has changed with the curriculum, and the "Meds" now roar you as gently as the "Theologs."

What I have said upon the general life and mental attitude of the student applies with tenfold force to you on account of the peculiar character of the subject-matter of your studies. Man, with all his mental and bodily anomalies and diseases—the machine in order, the machine in disorder, and the business yours to put it to rights. Through all the phases of its career this most complicated mechanism of this wonderful world will be the subject of your study and of your care—the naked, new-born infant, the artless child, the lad and the lassie just aware of the tree of knowledge overhead, the strong man in the pride of life, the woman with the benediction of maternity on her brow, and the aged, peaceful in the contemplation of the past. Almost everything has been renewed in the science and in the art of medicine, but all through the long centuries there has been no variableness or shadow of change in the essential features of the life which is our contemplation and our care. The sick love-child of Israel's sweet singer, the plague-stricken hopes of the great Athenian statesman, Elpenor, bereft of his beloved Artemidora, and Tully's daughter mourned so tenderly, are not of any age or any race—they are here with us to-day, with the Hamlets, the Ophelias, and the Lears. Amid an eternal heritage of sorrow and suffering our work is laid, and this eternal note of sadness would be insupportable if the daily tragedies were not relieved by the spectacle of the heroism and devotion displayed by the actors. Nothing will sustain you more potently than the power to recognize in your humdrum routine, as perhaps it may be thought, the true poetry of life—the poetry of the commonplace, of the ordinary man, of the plain, toil-worn woman, with their loves and their joys, their sorrows and their griefs. The comedy, too, of life will be spread before you, and nobody laughs more often than the doctor at the pranks Puck plays upon the Titanias and the Bottoms among his patients. The humorous side is really almost as frequently turned toward him as the tragic. Lift up one hand to heaven and thank your stars if they have given you the proper sense to enable you to appreciate the inconceivably droll situations in which we catch our fellow creatures. Unhappily, this is one of the free gifts of the gods, unevenly distributed, not bestowed on all, or on all in equal portions. In undue measure it is not without risk, and in any case in the doctor it is better appreciated by the eye than expressed on the tongue. Hilarity and good humor, a breezy cheerfulness, a nature sloping toward the southern side, as Lowell has it, help enormously both in the study and in the practice of medicine. To many of a sombre and sour disposition it is hard to maintain good spirits amid the trials and tribulations of the day, and yet it is an unpardonable mistake to go about among patients with a long face.

Divide your attentions equally between books and men. The strength of the student of books is to sit still—two or three hours at a stretch—eating the heart out of a subject with pencil and note-book in hand, determined to master the details and intricacies, focusing all your energies on its difficulties. Get accustomed to test all sorts of book problems and statements for yourself, and take as little as possible on trust. The Hunterian "Do not think, but try" attitude of mind is the important one to cultivate. The question came up one day, when discussing the grooves left on the nails after fever, how long it took for the nail to grow out, from root to edge. A majority of the class had no further interest; a few looked it up in books; two men marked their nails at the root with nitrate of silver, and a few months later had positive knowledge on the subject. They showed the proper spirit. The little points that come up in your reading try to test for yourselves. With one fundamental difficulty many of you will have to contend from the outset—a lack of proper preparation for really hard study. No one can have watched successive groups of young men pass through

the special schools without a profound sympathy for the hap-hazard, fragmentary character of their preliminary education. It does seem too bad that we cannot have a student in his eighteenth year sufficiently grounded in the humanities and in the sciences preliminary to medicine—but this is an educational problem upon which only a Milton or a Locke could discourse with profit. With pertinacity you can overcome the preliminary defects, and once thoroughly interested, the work in books becomes a pastime.

A serious drawback in the student life is the self-consciousness, bred of too close devotion to books. A man gets shy, "dysopic," as old Timothy Bright calls it, and shuns the looks of men, and blushes like a girl. The strength of a student of men is to travel—to study men, their habits, character, mode of life, their behavior under varied conditions, their vices, virtues and peculiarities. Begin with a careful observation of your fellow-students and of your teachers; then, every patient you see is a lesson in much more than the malady with which he suffers. Mix as much as you possibly can with the outside world, and learn its ways. The student societies, the students' union, the gymnasium, and the outside social circle should be cultivated systematically, to enable you to conquer the diffidence which goes with bookishness and which will prove a very serious drawback in after-life. I cannot too earnestly impress upon the earnest and attentive men among you the necessity of overcoming this unfortunate failing in your student days. It is not easy for every one to reach a happy medium, and the distinction between a proper self-confidence and "cheek," particularly in junior students, is not always to be made. The latter is met with chiefly among the student pilgrims who, in traveling down the Delectable mountains, have gone astray and have passed to the left hand, where lieth the country of Conceit, the country in which you remember the brisk lad Ignorance met Christian. I wish we could encourage on this continent the habit of wandering among our best students. I do not know that we are quite prepared for it, as there is still great diversity in the curricula, even among the leading schools, but it is undoubtedly a great advantage to study under different teachers, as the mental horizon is widened and the sympathies enlarged. The practice would do much to lessen that narrow "I am of Paul and I am of Apollos" spirit which is hostile to the best interests of the profession.

There is much that I would like to say on the question of work, but I can only spare a few moments for a word or two. Who will venture to settle upon so simple a matter as the best time for work? One will tell us there is no best time; all are equally good; and truly, all times are the same to a man whose soul is absorbed in some great problem. The other day I asked Edward Martin, the well-known story writer, what time he found best for work. "Not in the evening, and never between meals!" was his answer, which may appeal to some of my hearers. One works best at night; another, in the morning; a majority of the students of the past favor the latter. Erasmus, the great exemplar, says, "Never work at night; it dulls the brain and hurts the health." One day, going with George Ross through Bedlam, Dr. Savage, at that time the physician in charge, remarked upon two great groups of patients—those who were depressed in the morning and those who were cheerful, and he suggested that the spirits rose and fell with the bodily temperature—those with very low morning temperates were depressed, and vice versa. This, I believe, expresses a truth which may explain the extraordinary difference in the habits of students in this matter of the time at which the best work can be done. Outside of the asylum there are also the two great types, the student-lark who loves to see the sun rise, who comes to breakfast with a cheerful morning face, never so "fit" as at 6 A. M. We all know the type. What a contrast to the student-owl with his saturnine morning face, thoroughly unhappy, cheated by the wretched breakfast bell of the two best hours of the day for sleep, no appetite, and permeated with an unspeakable hostility to his *vis-à-vis*, whose morning garrulity and good humor are equally offensive. Only gradually, as the day wears on and his temperature rises, does he become endurable to himself and to others. But see him really awake at 10 P.M.! While the plethoric lark is in hopeless coma over his books, from which it is hard to rouse him sufficiently to get his boots off for bed, our lean owl-friend, Saturn no longer in the ascendant, with bright eyes and cheery face, is ready for four hours of anything you wish—deep study, or

"Heart affluence in discoursive talk,"

and by 2 A.M. he will undertake to unsphere the Spirit of Plato. In neither a virtue, in neither a fault; we must recognize these two types of students, differently constituted and owing possibly—though I have but little evidence for the belief—to thermal peculiarities.

In the days of probation the student life may be lived by each one of you in its fulness and in its joys, but the difficulties arise in the break which follows departure from college and the entrance upon new duties. Much will now depend on the attitude of mind which has been encouraged. If the work has been for your degree, if the diploma has been its sole aim and object, you will rejoice in a freedom from exacting and possibly unpleasant studies, and with your books you will throw away all thoughts of further systematic work. On the other hand, with good habits of observation you may have got deep enough into the subject to feel that there is still much to be learned, and if you have had ground into you the lesson that the collegiate period is only the beginning of the student life, there is a hope that you may enter

upon the useful career of the *student-practitioner*. Five years, at least, of trial await the man after parting from his teachers, and entering upon an independent course, years upon which his future depends and from which his horoscope may be cast with certainty. It is all the same whether he settles in a country village, or goes on with hospital and laboratory work; whether he takes a prolonged trip abroad, or whether he settles down in practice, with a father or a friend,—these five waiting years fix his fate so far as the student life is concerned. Without any strong natural propensity to study, he may feel such a relief after graduation that the effort to take to books is beyond his mental strength, and a weekly journal with an occasional text-book furnish pabulum enough, at least, to keep his mind hibernating. But ten years later he is dead mentally, past any possible hope of galvanizing into life as a student, fit to do a routine practice, often a capable, resourceful man, but without any deep convictions, and probably more interested in stocks or in horses than in diagnosis or therapeutics. But this is not always the fate of the student who finishes his work on Commencement day. There are men full of zeal in practice, and who give good service to their fellow creatures, who have not the capacity or the energy to keep up with the times. While they have lost interest in science, they are loyal members of the profession, and appreciate their responsibilites as such. That fateful first lustrum ruins some of our most likely material. Nothing is more trying to the soldier than inaction, to mark time while the battle is raging all about him; and waiting for practice is a serious strain under which many yield. In the cities it is not so hard to keep up; there is work in the dispensaries and colleges, and the stimulus of the medical societies; but in smaller towns and in the country it takes a strong man to live through the years of waiting without some deterioration. I wish the custom of taking junior men as partners and assistants would grow on this continent. It has become a necessity, and no man in large general practice can do his work efficiently without skilled help. How incalculably better for the seniors; how beneficial to the patients; how helpful in every way if each one of you, for the first five or ten years, was associated with a senior practitioner, doing his night work, his laboratory work, his chores of all sorts. You would, in this way, escape the chilling and killing isolation of the early years, and amid congenial surroundings you could, in time, develop into that flower of our calling—the cultivated general practitioner. May this be the destiny of a large majority of you! Have no higher ambition! You cannot reach any better position in a community; the family doctor is the man behind the gun, who does our effective work. That his life is hard and exacting; that he is underpaid and overworked; that he has but little time for study and less for recreation —these are the blows that may give finer temper to his steel, and bring out the nobler elements in his character. What lot or portion has the general practitioner in the student life? Not, perhaps, the fruitful heritage of Judah or Benjamin, but he may make of it the goodly portion of Ephraim. A man with powers of observation, well trained in the wards, and with the strong natural propensity to which I have so often referred, may live the ideal student life, and even reach the higher levels of scholarship. Adams, of Banchory (a little Aberdeenshire village), was not only a good practitioner and a skilful operator, but he was an excellent naturalist. This is by no means an unusual or remarkable combination, but Adams became, in addition, one of the great scholars of the profession. He had a perfect passion for the classics, and amid a very exacting practice found time to read "almost every Greek work which has come down to us from antiquity, except the ecclesiastical writers." He translated the works of Paulus Æginata, the works of Hippocrates, and the works of Aretæus, all of which are in the Sydenham Society's publications, monuments of the patient skill and erudition of a Scottish village doctor, an incentive to every one of us to make better use of our precious time.

Given the sacred hunger and proper preliminary training, the student-practitioner requires at least three things with which to stimulate and maintain his education, a note-book, a library and a quinquennial brain dusting. I wish I had time to speak of the value of note-taking. You can do nothing as a student in practice without it. Carry a small note-book which will fit into your waistcoat pocket, and never ask a new patient a question without note-book and pencil in hand. After the examination of a pneumonia case two minutes will suffice to record the essentials in the daily progress. Routine and system, when once made a habit, facilitate work, and the busier you are the more time you will have to make observations after examining a patient. Jot a comment at the end of the notes; "clear case," "case illustrating obscurity of symptoms," "error in diagnosis," etc. The making of observations may become the exercise of a jackdaw-like trick, like the craze which so many of us have to collect articles of all sorts. The study of the cases, the relation they bear to each other and to the cases in literature—here comes in the difficulty. Begin early to make a threefold category—clear cases, doubtful cases, mistakes. And learn to play the game fair, no self-deception, no shrinking from the truth; mercy and consideration for the other man, but none for yourself, upon whom you have to keep an incessant watch. You remember Lincoln's famous *not* about the impossibility of fooling all of the people all of the time. It does not hold good for the individual who can fool himself to his heart's content all of the time. If necessary, be cruel; use the knife and the cautery

to cure the intumescence and moral necrosis which you will feel in the posterior parietal region, in Gall and Spurzheim's center of self-esteem, and where you will find a sore spot after you have made a mistake in diagnosis. It is only by getting your cases grouped in this way that you can make any real progress in your post-collegiate education; only in this way can you gain wisdom with experience. It is a common error to think that the more a doctor sees the greater his experience and the more he knows. No one ever drew a more skilful distinction than Cowper in his oft-quoted lines, which I am never tired of repeating in a medical audience:

"Knowledge and wisdom, far from being one,
Have ofttimes no connection. Knowledge dwells
In heads replete with thoughts of other men;
Wisdom in minds attentive to their own.
Knowledge is proud that he has learned so much;
Wisdom is humble that he knows no more."

What we call sense or wisdom is knowledge, ready for use, made effective, and bears the same relation to knowledge itself that bread does to wheat. The full knowledge of the parts of a steam engine and the theory of its action may be possessed by a man who could not be trusted to pull the string to its throttle. It is only by collecting data and using them that you can get sense. One of the most delightful sayings of antiquity is the remark of Heraclitus upon his predecessors—that they had much knowledge, but no sense, which indicates that the noble old Ephesian had a keen appreciation of their difference; and the distinction, too, is well drawn by Tennyson in the oft-quoted line:

"Knowledge comes, but Wisdom lingers."

Of the three well-stocked rooms which it should be the ambition of every young doctor to have in his house, the library, the laboratory and the nursery—books, balances and bairns—as he may not achieve all three, I would urge him to start at any rate with the books and the balances. A good weekly and a good monthly journal to begin with, and read them. Then, for a systematic course of study, supplement your college text-books with the larger systems—Allbutt or Nothnagel—a system of surgery, and, as your practice increases, make a habit of buying a few special monographs every year. Read with two objects; first, to acquaint yourself with the current knowledge on a subject and the steps by which it has been reached, and secondly, and more important, read to understand and analyse your cases. To this line of work we should direct the attention of the student before he leaves the medical school, pointing in specific cases just where the best articles are to be found, sending him to the index catalogue—that marvelous storehouse, every page of which is interesting and the very titles instructive. Early learn to appreciate the differences between the descriptions of disease and the manifestations of that disease in an individual—the difference between the composite portrait and one of the component pictures. By exercise of a little judgment you can collect at moderate cost a good working library. Try, in the waiting years, to get a clear idea of the history of medicine. Read Foster's Lectures on the History of Physiology, Baas's History of Medicine. Get the Masters of Medicine series, and subscribe to the *Library and Historical Journal.*[1]

Every day do some reading or work apart from your profession. I fully realize, no one more so, how absorbing is the profession of medicine; how applicable to it is what Michel Angelo says, "There are sciences which demand the whole of a man, without leaving the least portion of his spirit free for other distractions"; but you will be a better man and not a worse practitioner for an avocation. I care not what it may be, gardening or farming, literature or history or bibliography, any one of which will bring you in contact with books. (I wish that time permitted me to speak of the other two rooms which are really of equal importance with the library, but which are more difficult to equip, though of coordinate value in the education of his head, his heart and his hand.) The third essential for the practitioner as a student is the quinquennial brain dusting, and this will often seem to him the hardest task to carry out. Every fifth year, back to the hospital, back to the laboratory, for renovation, rehabilitation, rejuvenation, reintegration, resuscitation, etc. Do not forget to take the note-books with you, or the sheets, in three separate bundles, to work over. From the very start begin to save for the trip. Deny yourself all luxuries for it; shut up the room you meant for the nursery,—have the definite determination to get your education thoroughly well started: if you are successful you may, perhaps, have enough saved at the end of three years to spend six weeks in special study; or in five years you may be able to spend six months. Hearken not to the voice of old "Dr. Hayseed" who tells you it will ruin your prospects, and that he "never heard of such a thing" as a young man, not yet five years in practice, taking three months' holiday. To him it seems preposterous. Watch him wince when you say it is a speculation in the only gold mine in which the physician should invest—*Grey Cortex!* What about the wife and babies if you have them—leave them! Heavy as are your responsibilities to those nearest and dearest, they are outweighed by the responsibilities to yourself, to the profession and to the public. Like Isaphaena, the story of whose husband—ardent, earnest soul, peace to his ashes!—I have told in the little sketch of "An Alabama Student," your wife will be glad to bear her share in the sacrifice you make.

With good health and good habits the end of the second lustrum should find you thoroughly established—all three rooms well furnished, a good stable, a good garden, no mining stock, but a life insurance and, perhaps, a mort-

[1] Brooklyn. Price, $2 per annum.

gage or two on neighboring farms. Year by year you have dealt honestly with yourself; you have put faithfully the notes of each case into its proper place, and you will be gratified to find that, though the doubtful cases and mistakes still make a rather formidable pile, it has grown relatively smaller. You literally "own" the country-side, as the expression is. All the serious and dubious cases come to you, and you have been so honest in the frank acknowledgment of your own mistakes, and so charitable in the contemplation of theirs, that neighboring doctors, old and young, are glad to seek your advice. The work which has been very heavy is now lightened by a good assistant, one of your own students, who becomes in a year or so your partner. This is not an overdrawn picture, and it is one which may be seen in many places, except, I am sorry to say, in the particular as to the partners. This is the type of man we need in the country districts and the smaller towns. He is not a whit too good to look after the sick, not a whit too highly educated—impossible! And with an optimistic temperament and a good digestion he is the very best product of our profession, and may do more to stop quackery and humbuggery, inside and outside of the ranks, than could a dozen prosecuting county attorneys. Nay, more! such a doctor may be a daily benediction in the community—a strong, sensible, whole-souled man, living a life often of great self-denial, always of tender sympathy, worried neither by the vagaries of the well nor the testy waywardness of the sick, and to him, if to any, may come (even when he knows it not) the true spiritual blessing—that "blessing which maketh rich and addeth no sorrow."

The danger in such a man's life comes with prosperity. He is safe in the hard-working day, when he is climbing the hill, but once success is reached, with it come the temptations to which many succumb. Politics has been the ruin of many country doctors, and often of the very best, of just such a good fellow of whom I have been speaking. He is popular; he has a little money; and he, if anybody, can save the seat for the party! When the committee leaves you, take the offer under consideration, and if in the ten or twelve years you have kept on intimate terms with those friends of your student days, Montaigne and Plutarch, you will know what answer to return. If you live in a large town, resist the temptation to open a sanatorium. It is not the work for a general practitioner, and there are risks that you may sacrifice your independence and much else besides. And, thirdly, resist the temptation to move into a larger place. In a good agricultural district, or in a small town, if you handle your resources aright, taking good care of your education, of your habits and of your money, and devoting part of your energies to the support of the societies, etc., you may reach a position in the community, of which any man may be proud. There are country practitioners among my friends with whom I would rather change places than with any in our ranks, men whose stability of character and devotion to duty make one proud of the profession.

Curiously enough, the student practitioner may find studiousness to be a stumbling-block in his career. A bookish man may never succeed; deep-versed in books, he may not be able to use his knowledge to practical effect; or, more likely, his failure is not because he has studied books much, but because he has not studied men more. He has never got over that shyness, that diffidence against which I have warned you. I have known instances in which this malady was incurable; in others I have known a cure effected not by the public, but by the man's professional brethren, who, appreciating his work, have insisted upon utilizing his mental treasures. It is very hard to carry student habits into a large city practice; only zeal, a fiery passion, keeps the flame alive, smothered as it is so apt to be by the dust and ashes of the daily routine. A man may be a good student who reads only the book of nature. Such an one[1] I remember in the early days of my residence in Montreal—a man whose devotion to patients and whose kindness and skill quickly brought him an enormous practice. Reading in his carriage and by lamplight at Lucina's bedside, he was able to keep well informed; but he had an insatiable desire to know the true inwardness of a disease, and it was in this way I came into contact with him. Hard pushed day and night, yet he was never too busy to spend a couple of hours with me searching for data which had not been forthcoming during life, or helping to unravel the mysteries of a new disease, such as pernicious anemia.

The *student specialist* has to walk warily, as with two advantages there are two great dangers against which he has constantly to be on guard. In the bewildering complexity of modern medicine it is a relief to limit the work of a life to a comparatively narrow field which can be thoroughly tilled. To many men there is a feeling of great satisfaction in the mastery of a small department, particularly one in which technical skill is required. How much we have benefited from this concentration of effort in dermatology, laryngology, ophthalmology, and in gynecology! Then, as a rule, the specialist is a freeman, with leisure or, at any rate, with some leisure; not the slave of the public, with the incessant demands upon him of the general practitioner. He may live a more rational life, and has time to cultivate his mind, and he is able to devote himself to public interests and to the welfare of his professional brethren, on whose suffrages he so largely depends. How much we are indebted in the larger cities to the disinterested labors of this favored class, the records of our libraries and medical societies bear witness. The dangers do not come to the strong man in a specialty, but to the weak brother who seeks in it an easier field in which specious garrulity and mechanical

[1] The late John Bell.

dexterity may take the place of solid knowledge. All goes well when the man is larger than his specialty and controls it, but when the specialty runs away with the man there is disaster, and a topsy-turvy condition which, in every branch, has done incalculable injury. Next to the danger from small men is the serious risk of the loss of perspective in prolonged and concentrated effort in a narrow field. Against this there is but one safeguard—the cultivation of the sciences upon which the specialty is based. The student specialist may have a wide vision—no student wider—if he gets away from the mechanical side of the art, and keeps in touch with the physiology and pathology upon which his art depends. More than any other of us, he needs the lessons of the laboratory, and wide contact with men in other departments may serve to correct the inevitable tendency to a narrow and perverted vision, in which the life of the ant-hill is mistaken for the world at large.

Of the *student-teacher* every faculty affords examples in varying degrees. It goes without saying that no man can teach successfully, who is not at the same time a student. Routine, killing routine, saps the vitality of many who start with high aims, and who, for years, strive with all their energies against the degeneration which it is so prone to entail. In the smaller schools isolation, the absence of congenial spirits working at the same subject, favors stagnation, and after a few years the fires of early enthusiasm no longer glow in the perfunctory lectures. In many teachers the ever-increasing demands of practice leave less and less time for study, and a first-class man may lose touch with his subject through no fault of his own, but through an entanglement in outside affairs which he cannot control, yet deeply regrets. To his five natural senses the student teacher must add two more—the sense of responsibility and the sense of proportion. Most of us start with a highly developed sense of the importance of the work and with a desire to live up to the responsibilities intrusted to us. Punctuality, the class first, always and at all times, the best that a man has in him, nothing less; the best the profession has on the subject, nothing less; fresh energies and enthusiasm in dealing with dry details; animated, unselfish devotion to all alike; tender consideration for his assistants —these are some of the fruits of a keen sense of responsibility in a good teacher. The sense of proportion is not so easy to acquire, and much depends on the training and on the natural disposition. There are men who never possess it; to others it seems to come naturally. In the most careful ones it needs constant cultivation—*nothing over much* should be the motto of every teacher. In my early days I became under the influence of an ideal student teacher, the late Palmer Howard, of Montreal. If you ask what manner of man he was, read Matthew Arnold's noble tribute to his father in his well-known poem, *Rugby Chapel*. When young, Dr. Howard had chosen a path—" path to a clear-purposed goal," and he pursued it with unswerving devotion. With him the study and the teaching of medicine were an absorbing passion, the ardor of which neither the incessant and ever-increasing demands upon his time nor the growing years could quench. When I first, as a senior student, came into intimate contact with him in the summer of 1871, the problem of tuberculosis was under discussion, stirred up by the epoch-making work of Villemin and the radical views of Niemeyer. Every lung lesion at the Montreal General Hospital had to be shown to him, and I got my first-hand introduction to Laennec, to Graves and to Stokes, and became familiar with their works. No matter what the hour, and it usually was after 10 P.M., I was welcome with my bag, and if Wilks and Moxon, Virchow, or Rokitanski, gave us no help, there were the Transactions of the Pathological Society and the big *Dictionnaire* of Dechambre. An ideal teacher because a student, ever alert to the new problems, an indomitable energy enabled him in the midst of an exacting practice to maintain an ardent enthusiasm, still to keep bright the fires which he had lighted in his youth. Since those days I have seen many teachers and I have had many colleagues, but I have never known one in whom were more happily combined a stern sense of duty with the mental freshness of youth.

But as I speak from out the memory of the past, there rises before me a shadowy group, a long line of students whom I have taught and loved, and who have died prematurely—mentally, morally, or bodily. To the successful we are all willing and anxious to bring the tribute of praise, but none so poor to give recognition to the failures. From one cause or another, perhaps because, when not absorbed in the present, my thoughts are chiefly in the past, I have cherished the memory of many young men whom I have loved and lost. *Io victis!* let us sometimes sing of the vanquished. Let us sometimes think of those who have fallen in the battle of life, who have striven and failed, who have failed even without the strife. How many have I lost from the student band by mental death, and from so many causes—some still-born from college, others dead within the first year of infantile marasmus, while mental rickets, teething, tabes and fits have carried off many of the most promising minds! From improper feeding within the first five fateful years scurvy and rickets head the mental mortality bills of students. To the teacher-nurse it is a sore disappointment to find at the end of ten years so few minds with the full stature, of which the early days gave promise. Still, so widespread is mental death that we scarcely comment upon it in our friends. The real tragedy is the moral death which, in different forms, overtakes so many good fellows who fall away from the pure, honorable and righteous service of Minerva into the idolatry of Bacchus, of Venus or of Circe. Against the background of the past these trage-

dies stand out, lurid and dark, and as the names and faces of my old boys recur (some of them my special pride), I shudder to think of the blighted hopes and wrecked lives, and I force my memory back to those happy days when they were as you are now, joyous and free from care, and I think of them on the benches, in the laboratories and in the wards—and there I leave them. Less painful to dwell upon, though associated with a more poignant grief, is the fate of those whom physical death has snatched away in the bud or blossom of the student life. These are among the tender memories of the teacher's life, of which he does not often care to speak, feeling with Longfellow that the surest pledge of their remembrance is "the silent homage of thoughts unspoken." As I look back it seems now as if the best of us had died, that the brightest and the keenest had been taken, and the more commonplace among us had been spared. An old mother, a devoted sister, a loving brother, in some cases a broken-hearted wife, still pay the tribute of tears for the untimely ending of their high hopes, and in loving remembrance I would mingle mine with theirs. What a loss to our profession have been the deaths of such true disciples as Zimmerman, of Toronto; of Jack Cline and of R. L. MacDonnell, of Montreal; of Fred. Packard and of Kirkbride, of Philadelphia; of Oppenheimer and of Oehner, in Baltimore—cut off with their leaves still in the green, to the inconsolable grief of their friends!

To each one of you the practice of medicine will be very much as you make it—to one a worry, a care, a perpetual annoyance; to another, a daily joy and a life of as much happiness and usefulness as can well fall to the lot of man. In the student spirit you can best fulfil the high mission of our noble calling—in his *humility*, conscious of weakness, while seeking strength; in his *confidence*, knowing the power, while recognizing the limitations of his art; in his *pride* in the glorious heritage from which the greatest gifts to man have been derived; and in his sure and certain hope that the future holds for us still richer blessings than the past.

TWO EXPERIMENTS IN ARTIFICIAL IMMUNITY AGAINST TUBERCULOSIS.

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As the papers which have just been read relate to the difference of the pathological lesions produced in animals immunized against tuberculosis by attenuated living cultures, also to the value of agglutination in the various degrees of tuberculous infection and to the opsonic power of the blood of immunized compared with unimmunized animals, I am glad to avail myself of the privilege accorded me by your Chairman of describing to you two experiments recently made by me which bear on artificial immunity against tuberculosis in small animals.

Many of you who have followed carefully the continued but apparently hopeless efforts to produce artificial immunity against this disease, in which clinically no acquired immunity seems to exist, and where one attack apparently does not protect from another, and who remember the many failures which have followed attempts at producing an antitoxic serum for tuberculosis or immunity against the disease by tuberculin or other products of the germ, may nevertheless have been struck with the fact that rather better results have been claimed at intervals during the past thirteen years by a certain class of experimenters.

I refer principally to the work done by de Schweinitz, Pearson and Gilliland, and Trudeau, in this country, that of MacFadyean in England, and of Behring, Neufeld, Baumgarten, and also Möller and Friedmann, in Germany. The distinctive feature of their work is that the immunity claimed, whatever its degree, is produced not by a toxin but by a preventive inoculation made with living but attenuated bacilli. These bacilli may depend for their attenuation either on the selection of a race of tubercle bacilli not naturally virulent for the animals to be protected, or on prolonged cultivation on artificial media which produces attenuation of virulence in the same variety of tubercle bacillus naturally virulent for the animal sought to be protected.

Marmorek and Maragliano still claim to produce antitoxic and bacteriolytic serums which are effectual when employed in the treatment of human tuberculosis, but sufficient time has not elapsed to establish the validity of their claims. In my own work the best results I have obtained in producing a relative but demonstrable degree of immunity, or at least increased resistance in small animals, have been brought about by the previous inoculations of living but attenuated cultures, and have been published at long intervals since 1893.

Rabbits and guinea-pigs, which I have always made use of, are by no means ideal animals for immunization, the guinea-pig being almost too susceptible, so that nothing more than relative immunity can be obtained with these animals; the rabbit, on the other hand, recovering very readily after a time from even intravenous inoculations of human tubercle bacilli, unless these be very virulent or the amount injected very large, so that the controls have a disagreeable way of making relative if not complete recoveries.

It having been demonstrated by de Schweinitz and myself that a human culture by prolonged cultivation lost its virulence for even such susceptible animals as guinea-pigs, and that its injection gave these animals a relative degree of immunity, I began over a year ago experiments

[1] Part of the Discussion at the Bacteriological and Pathological Section of the Meeting of the National Association for the Study and Prevention of Tuberculosis, May 18 to 19, 1905.

to try to throw more light on the nature of this very apparent protection. The first experiment I made was with a view to determining whether a living bacillus was necessary to the production of the highest degree of immunity attainable, or whether dead bacilli would be equally effective. Was the immunity a result of the struggle between the living bacillus and the cell, or was it merely the chemical products of the germ which were essential to success, living or dead? Was the immunity simply a toxin immunity, or was it a bacteriolytic or isopathic immunity which could be induced only by the substances resulting from the struggle between the living cells and the living but attenuated germs? The conditions of the experiment were as follows:

Guinea-pigs of the same weight were chosen. Twelve were injected in the left groin with one-half milligram attenuated, actively growing, human culture (R 1). The culture was then put in the steam sterilizer for fifteen minutes, and twelve more guinea-pigs were similarly inoculated. In a month they received one milligram of the same attenuated culture (living and dead) intraperitoneally. A month after the first vaccination the pigs injected with the living bacilli showed slight enlargement of inguinal glands, but nothing more. Those injected with the dead bacilli showed no evidence whatever of the inoculation. A month after the last protective inoculation they were all injected in the right groin, along with eight control animals of the same size, with one milligram virulent human tubercle bacilli. The last of the controls died in ninety days with gross and advanced cheesy lesions in glands, spleen, liver and lungs. At that time (ninety days) four of the pigs vaccinated with dead tubercle bacilli had died, and none of those vaccinated with living. One of the animals from each of the two lots of vaccinated pigs was then killed in order to compare their lesions with those of the controls. As you see in the painted photographs I show you, the lesions of the controls and those of the animals vaccinated with dead tubercle bacilli differ but little. They both have cheesy nodes, enormous cheesy spleens and livers, and the lungs are extensively invaded with cheesy tubercle. The difference in the gross appearance of the organs of the animal vaccinated with the living culture is, however, apparent at a glance; namely, though the nodes are enlarged, and the spleen moderately so, there is as yet no evidence of caseation recognizable to the naked eye. In other words, the animal is tuberculous, and would, like the rest of those in the same lot, have died ultimately of tuberculosis as they all do, but the living vaccination had a very decided and easily demonstrable influence in arresting the progress of the disease; an influence which proved to be undemonstrable in the animal vaccinated with the same culture previously killed by heat, but which nevertheless is found to be present, though to a less degree, when the duration of life in a larger number of animals is considered.

The test inoculation in this particular lot of animals was more virulent and much larger than is best to use in order to demonstrate the immunity conferred by the vaccination, but that some slight protection is afforded even by the dead bacilli, under so severe a test, is apparent when the duration of all the animals' lives is considered. Thus the controls' average life was 70⅔ days; the average life of the animals vaccinated with dead bacilli 99 days, and with living bacilli 155 days. It would seem that a very marked protection is afforded by the living bacilli, and a very slight but still appreciable degree of increased resistance by the dead bacilli. Such evidence is important in its bearing on the treatment of tuberculosis by Bacillen Emulsion, some observers still maintaining that good results are obtainable from this treatment in the human being, though no very marked immunity is produced.

This experiment is no doubt open to the criticism that in killing the cultures by heat their chemical constituents may have been altered, and that if they could be killed by some method that would not in any way change their delicate chemical composition the dead bacilli would protect as well as the living. To obtain some evidence on this point another experiment was undertaken. Small amounts, one-tenth milligram, of dead bacilli killed by three hours' exposure to sunlight were injected at short intervals in pulverized form, and the protection afforded was less marked than where the heat-killed cultures were employed in two massive injections. Average life for nine controls, 87.4 days. Average life for twelve vaccinated, 95 days. The next experiment also gives some evidence rather tending to disprove this hypothesis.

During the past year Möller, and later, Friedmann, have used bacilli derived from or passed through cold-blooded animals as a protective inoculation, and have claimed marked results from these vaccinations in guinea-pigs and rabbits, much better results, it seems to me, than I was able to obtain with my attenuated tubercle bacilli of human origin. Möller used a tubercle bacillus culture which was derived from the frog, and one which had been passed through the blind worm. Both these cultures grew freely on glycerin peptone agar at room temperature, and Möller claimed that as they would not grow at the temperature of the human body, they were perfectly safe to use as a vaccine, an advantage which could not be said to be possessed by the bacillus of human origin and growing at the temperature of warm-blooded animals, only, no matter how attenuated it might have become by prolonged cultivation on artificial media in the thermostat.

These two varieties of cultures, the frog and the slow worm, Dr. Baldwin was enabled to

obtain from Dr. Möller, and they were grown in our laboratory at room temperature. I determined to make an experiment that would be likely to shed light, (1) on the degree of protection afforded by cultures of warm-blooded origin but attenuated by prolonged growth, as compared with that conferred by bacilli derived from cold-blooded creatures and which apparently die at once when introduced into warm-blooded animals. (2) To determine whether the degree of attenuation obtained by prolonged growth bears any relation to the degree of protection afforded; that is, whether a culture of human origin grown for over twenty years on artificial media, which produces now little or no appreciable local lesion and never tends to generalize itself, will protect as well as one also of human origin which has been cultivated for over fourteen years, and which still produces in all the guinea-pigs slightly enlarged inguinal nodes near the site of inoculation, and occasionally even—that is, in about one in ten animals—brings about a little caseation in such a node, with a tendency to become generalized only to the extent that bacilli in a few instances reach as far as the spleen. The former culture is designated K 1, and is one of the original cultures which Dr. Koch separated in his first work on tuberculosis. The second is my old R 1 culture, which I obtained from the human subject, and has grown, principally on glycerin peptone bouillon, about fifteen years.

On February 27, 1905, 48 guinea-pigs of the same size were separated into four groups, and each group received respectively, in the left groin, one-half a milligram of each of the following vigorously growing agar cultures: Lot I, human, R 1 culture; Lot II, human K 1 culture; Lot III, cold-blooded (frog), and Lot IV, cold-blooded (blind worm) culture. A month later one of each group was killed. Blind worm and frog guinea-pigs showed absolutely no lesion. K 1 animals show enlarged nodes, no caseation or tubercle bacilli. R 1, one or two enlarged nodes, slight caseation and a few tubercle bacilli. No other lesions anywhere. The animals were all tested with tuberculin, and only the Lot I, human culture R 1 pigs, gave any reaction indicating the presence of a slight tuberculous process.

March 27, thirty-three days after vaccination, all the vaccinated animals, together with twelve controls, were injected subcutaneously in right groin with one-tenth milligram virulent human tubercle bacilli culture. All the 55 animals were killed at the same time, May 10, or 44 days after the virulent inoculation, and having been divided in five lots, were laid out side by side for comparison. The animals of each lot were quite uniform in the character and extent of their lesions.

Lot I, Vaccinated R 1 Human, show enlarged and, occasionally, cheesy nodes, slightly enlarged spleen, abundant perirenal fat. No other macroscopical lesions are visible, no tubercles or caseation.

Lot II, Vaccinated with K 1 Human, show caseous nodes and much larger spleen (over twice as large as Lot I); absence of perirenal fat marked in nearly half the animals, but no caseous tubercles, though a few gray tubercles could be seen in liver and lung in about one-third of the animals.

Lots III and IV, vaccinated with cultures from cold-blooded animals (frog and blind worm), as well as the controls, all show to about the same degree the usual picture of well-advanced generalized tuberculosis in the guinea-pig. Spleens about three times the size of Lot II, riddled with gray caseating tubercle. Entire absence of perirenal and lumbar fat, cheesy areas in liver, and gray tubercle in the lungs.

The controls and animals of Lots III and IV were in no way distinguishable, while any one of the animals, Lot I and Lot II, could have been picked out easily if thrown among controls, or victims vaccinated with cultures from cold-blooded animals.

This experiment seems to offer some interesting evidence. First, there is evidently a relation between the degree of protection and the attenuation of the culture used as a vaccine. The R 1 human, which from its production of local effects, enlargement of neighboring nodes containing bacilli, and slight tendency to generalization (bacilli having been found occasionally in the spleens of animals injected with this attenuated culture), protects better against subsequent virulent inoculation than the K 1 culture, which produced hardly any appreciable and purely localized effect, no bacilli being found to have penetrated even the inguinal glands near the inoculation spot.

The frog and blind worm bacillus, which causes no local disturbance at all, seemed to have no effect in protecting the vaccinated animals, for the lesions of these exactly resembled those of the controls. The conclusions to be drawn from both of these experiments would therefore seem to be, (1) that dead tubercle bacilli increase, though to a very slight degree, the animal's resistance to subsequent inoculation; (2) that the living attenuated bacillus gives a stronger degree of immunity than the same baccillus killed by heat: (3) that the degree of attenuation of the bacillus used as vaccine bears a distinct relation to the degree of protection it affords in guinea-pigs to subsequent inoculation with virulent human cultures. That a culture still capable of producing a very small amount of cell destruction, and of spreading to the neighboring inguinal nodes, gives better protection than one which produces hardly any appreciable and purely localized tissue changes; (4) that cultures derived from cold-blooded animals and which grow only at room temperature, as used above, have brought about no ap-

preciable degree of immunity. (5) the chemical changes produced in killing the bacilli by heat in the first experiment cannot wholly explain the lack of protective power of the vaccination with dead bacilli, for the K 1 human bacilli used in the second experiment, though they had not been killed by heat, failed to give as good protection as the R 1 human culture, which differed from it only in the degree of its virulence.

The evidence here presented would seem to be in keeping with what we know of the artificial immunizations. Toxin immunity, or immunity brought about with dead germs, is never as strong or as lasting as that produced through the medium of a living virus (passive and active immunity). Furthermore, the degree of the attenuation of the virus greatly influences the degree of immunity obtained.

My acknowledgments are due to Dr. E. R. Baldwin, Dr. Hugh Kinghorn, and Dr. A. H. Allen, who carried out these experiments for me.

STUDIES ON IMMUNITY IN TUBERCULOSIS: THE PROPERTIES OF THE SERUM OF IMMUNIZED RABBITS.

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Part I.

The following experiments were undertaken largely as a continuation of the work presented by Dr. Trudeau in 1903 before the Association of American Physicians.[1] It was desired to obtain if possible a closer insight into the mechanism of the specifically acquired resistance to a virulent human tuberculous infection produced in rabbits by previous intravenous inoculation with bacilli of weak virulence.

Briefly described, the observations previously made were that an intense and prolonged inflammatory reaction, both general and local, occurred in the vaccinated animals immediately following the virulent inoculation. This was not noted in the controls. Gradually this tuberculin-like reaction subsided and in many favorable cases the ultimate result was an almost complete absorption of the tuberculous foci and disappearance of the bacilli, while in the meantime the controls became progressively worse until a condition of chronic tuberculosis ensued.

The importance of an intimate knowledge of this immunity reaction is at once obvious to us. It might explain some phases of the clinical course of human tuberculosis in its relapses and pneumonic forms, and even furnish new viewpoints for a rational therapy. Furthermore as this vaccination has already been found useful in the bovine, one may not be skeptical of its possibilities in human application.

1 Trans. Association of American Physicians, Vol. XVIII, 1903.

The first step naturally suggested was to follow from day to day the different stages of the reaction in comparison with control animals killed simultaneously. For this purpose 23 Belgian hares were first selected as nearly the same color and size as possible, and 13 were vaccinated by the inoculation of .0001 gm. from a broth culture (R1 human) intravenously. No apparent loss of health usually follows this dose unless the animals are already the subjects of some other infection such as coccidiosis, or septicemia (snuffles). Of this series one died from the effects of fighting. The virulent inoculation followed in two months. Two c.c. (.00235 gm.) of virulent human (H33) from nine days' serum cultures was given in the same way to 11 vaccinated and 10 controls, one of the former being reserved without inoculation. The animals were etherized and bled to death in pairs, from the first to the thirtieth day at intervals of several days. Later a second lot of 30 hares and rabbits were vaccinated and 25 inoculated in the same maner together with 20 controls. This series was killed from the fourteenth to the sixty-first day so that a fairly complete review of the pathological processes was obtained (see the paper by Dr. J. L. Nichols, Part II). In addition to the above a further series of five pairs was used, more especially for the study of the serum reactions.

Daily observations of the temperature for a month after the virulent inoculation were made on 10 pairs of the first series, the result of which indicated an average higher temperature for the vaccinated animals during the first ten days, but higher for the controls during the second ten days, after which both subsided: thus it coincided with the course of the inflammatory reaction as described in the pathological report.

Agglutination Tests.—The examination of the serums was made either on the day of the bleeding or within twenty-four hours. Various emulsions and extracts of tubercle bacilli were employed to test their agglutinating and precipitating powers, but the preparation employed mostly was an emulsion of pulverized bacilli, as described by Koch, but without the addition of phenol.

The lack of uniformity in successive emulsions of the homogeneous culture of Arloing and Courmont made the results with this method useless for comparison. Moreover, the serums showing most activity in sedimenting Koch's emulsion frequently failed to agglutinate the Courmont cultures and *vice versa.*

The pulverized bacillus emulsion was prepared by diluting one part of 1-1,000 Koch emulsion to three volumes with .85 per cent. NaCl, which made a weak opalescence. The tests were made in dilutions of 1 in 5; 1-10; 1-15; 1-20, or higher, when the serum proved active. Each tube contained a total volume of 1 c.c. and a small drop of toluol.

The readings were taken after twenty-four

hours in the incubator and only sedimentation with clearing was regarded as a positive reaction.

Weak emulsions of the homogeneous culture "A" obtained from Prof. Courmont as well as one of our own ("K") were made by diluting the one month broth cultures about four times with .85 per cent. NaCl. Observations were taken after two and five hours, the tubes being kept at room temperature.

The results of precipitation tests with filtered extracts of tubercule bacilli were uniformly negative.

Normal saline—NaCl .85 per cent.—and $NaHCO_3$ 0.5 per cent. extracts of washed cultures from broth were prepared by digesting the bacilli for twenty-four hours at 45° C., and filtering through the Berkefeld bougie.

The sedimentation produced in Koch's emulsion was, however, quite markel in most of the vaccinated serums from the third to the thirtieth day after the virulent inoculation, reaching a maximum of 1 in 50 dilution in two serums and apparently higher and more constant between the fifth and twelfth days. All were negative before inoculation and during the first two days, and after the thirtieth day following inoculation. Only 9 controls out of 26 gave any agglutinations, the highest being 1 in 20 on the ninth day.

A curious fact may here be noted in passing that of these nine controls reacting positively, six were found to have more or less coccidiosis of the liver and revealed very slight and unprogressive tuberculous lesions.[1] Because of the complications these animals may be excluded in comparison, and in general it may be stated that the controls were negative to the Koch agglutination test, although more frequently positive to the Courmont test. It would appear that the agglutinin in the coccidiosis animals was less specific, or a so-called "partial agglutinin" since its genesis depended upon the presence of the coccidiosis. This view is strengthened by the fact that no congestion was evident about the tubercles in these animals.[2] On comparison of the lung sections with the results of the serum tests we noted a correspondence of the stronger serum reactions with the more intense and extensive inflammatory appearances in the vaccinated animals.

The significance of this undoubted development of agglutinin in the vaccinated animals, far in excess of the controls, is obvious as an evidence of a specific reaction-product. Whether we must also regard it as having some important function in combating the infection is less certain at present.

Phagocytosis.—The publicaton of Wright and Douglas's [2] work on the so-called "opsonin" in the tuberculosis serums naturally gave us the incentive to study the phagocytosis of tubercle bacilli as influenced by the serums of immunized and control rabbits before and after inoculation. According to Wright and Douglas, who worked exclusively with human serums, an increase of the number of living or dead tubercle bacilli, taken up by polynuclear leucocytes, could be demonstrated by counting the bacilli according to Leishman's method in the stained specimens, where the patient was undergoing a successful tuberculin treatment.

The technic was somewhat lengthy and difficult, and we found the rabbits' blood less adapted to the process than the human. After numerous trials we came to the conclusion that this method of determining comparatively the opsonic power of serum was of little value in rabbits unless considerable differences were found in the strength of the serums. When the serums were nearly the same, or even moderately variable in strength, the counts were very wide in their variation. The above tests were made with twenty animals of the second series.

The method of Leishman was first tried with blood taken directly from the ear vein during life and incubated fifteen minutes at 38.5° C. in a moist chamber on slides, with an equal volume of tubercle bacilli emulsion. The smears were then immediately dried and fixed, stained with aniline fuchsin fifteen minutes at 38° C.; decolorized with acid alcohol (0.5 per cent. HCl, alcohol 50 per cent.), and stained with Wright's blood stain. Counts of the tubercle bacilli in 20 to 80 polynuclear leucocytes were then made and averaged.

When the animals were killed the serum method was employed as described by Wright,[1] using washed leucocytes obtained sometimes from a healthy rabbit, but frequently from one of the inoculated animals. Two volumes of leucocytes suspended in normal NaCl, two volumes of centrifugalized serum and one of a standard emulsion of tubercle bacilli in 1 per cent. NaCl were measured in capillary pipettes and incubated 20 minutes at 40° C. The greatest difficulty was experienced in preparing uniform emulsions of tubercle bacilli on successive days. The most satisfactory method was found to be the use of homogeneous cultures grown on potato eight days, sterilized by boiling the entire tubes, and taking a large standard loopful of the moist growth which was rubbed up in 1.5 c.c. one per cent NaCl, and centrifugalized fifteen minutes in small tubes. These emulsions were generally free from clumps; others were not, nor could the same emulsion be used on successive days, even if it stirred up and recentrifugalized without weakening it and thus making any comparison from day to day quite useless. At the best, the spontaneous clumping of the emulsions and the varying agglutinating powers of the serums made the counts of doubtful value for comparison on the same day. An

1 This apparent insusceptibility or restraining influence in animals suffering from coccidiosis has often been noted by us, and has recently been mentioned by Libbertz and Ruppel in connection with other diseases in guinea pigs. Such animals appear to emaciate and die with but few apparent tuberculous foci, but often reveal extensive atrophy of the liver. Deutsch med. Woch., No. 4, Jan. 26, 1905.

2 Lancet, Oct. 24, 1904.

1 Wright and Douglas, London Lancet, Oct. 22, 1904.

inevitable variability in the number of leucocytes present and active is another source of fallacy.

By modifying the technic somewhat we were able to study the opsonic power of the serum of five immunized and four control animals whose blood was taken almost daily for four days preceding, and twenty days after, the virulent inoculation. Besides the latter, three healthy animals were used from time to time for comparison; agglutination tests were also made each day.

In this series about 1 c.c. of blood was drawn each day from the ear vein and the serum used within two hours.

Instead of incubating the specimens in the measuring pipettes, as described by Wright, we found it more convenient and the results better by employing miniature tubes into which the mixture was transferred after measuring. These "mixers" were placed in holes of a wooden block during incubation, like cribbage counters.

No marked difference was noted between vaccinated and control serums before and immediately after the virulent inoculation. Both sets showed considerable individual variations from day to day, but all were weaker on the first two days following infection. The vaccinated serums were usually below the controls in opsonic power from the beginning, and two pairs which had shown the greatest variation, when bled to death, revealed the typical differences elsewhere described between the lungs of the vaccinated and controls to a marked degree; one pair was killed on the sixteenth day, the other on the twentieth day. Both vaccinated serums sedimented Koch's emulsion 1-40 and 1-20, respectively; the controls were negative. If the intense reactive infiltration is regarded as an active phagocytosis, which it appears to be in part, the lower opsonic power of the serums may be accounted for by its exhaustion, though evolved in excess of that in the controls. On the other hand the higher opsonic value of the control serum and the excess of the agglutinin, simultaneously with lower opsonin in the vaccinated, are phenomena that need explanation.

No coincidence was noted in our experiments between the agglutination of Koch's emulsion and opsonic power, although the phagocytosis was generally more complete when the serum agglutinated the bacilli. Studies on the relations between the agglutinins and opsonic power are in progress.

As a final observation we may state that the intense reaction seen in vaccinated rabbits was observed only in the lungs, where doubtless most of the bacilli lodge; and in a few animals the reaction was evidently followed by such lowered resistance that instead of absorption large caseous areas developed, much more extensively than in the controls. Thus one cannot say that the method of vaccination always succeeds at last in destroying the bacilli and removing the tubercles, though it must be remembered that these inoculations are extremely severe conditions for animals to withstand. Moreover, the absorption of foci in the controls was occasionally observed to nearly the same degree, and the presumption is that the mechanism is the same, but delayed and less active in unvaccinated animals.

STUDIES ON IMMUNITY IN TUBERCULOSIS: AN HISTOLOGICAL STUDY OF THE LESIONS OF IMMUNIZED RABBITS.

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Part II.

The following examination was conducted for the purpose of demonstrating the histological differences in the formation and further progress of tubercles in previously vaccinated and in unvaccinated animals already described in Part I.

In former experiments by Dr. Trudeau[1] the great value of previous vaccination was shown by the survival, or greatly prolonged lifetime, of the vaccinated animals, and by the death of nearly all the unvaccinated. In those experiments a number of animals in each series were killed on the twenty-second day after the virulent inoculation, and microscopical examination made by Dr. Eugene Hodenpyl[2] showed a marked difference between the lungs of the vaccinated animals and those of the controls. The former were densely infiltrated and more congested than the controls, while vaccinated animals, killed some months later, revealed a remarkable absence of tuberculous foci and bacilli in the lungs, thus indicating an extensive absorption of the infiltration.

In order to try to follow the successive stages of this reaction the present experiment was conducted on the same lines, with the difference that one of each set of animals, *i.e.*, vaccinated and unvaccinated, was killed at certain intervals after the virulent inoculation, varying from twenty-four hours to thirty days. The blood serum was tested for agglutinins by Dr. Baldwin, while the internal organs were given to me for microscopical examination.

The two sets of animals reacted differently to the virulent inoculation, the vaccinated showing for the first three or four days a distinctly higher temperature and greater general disorder. In the ensuing week, however, the condition was gradually reversed, the vaccinated animals

1 Transactions Association of American Physicians, Vol. XVIII, 1903.

2 Sections from some of these rabbits were made and examined by Dr. Hodenpyl with the following results, which agree substantially with my own:

a. Vaccinated rabbits; no virulent inoculation. Killed after eighty days; no trace of inoculation.

b. Control; killed twenty-two days after virulent inoculation: Many tubercle bacilli; little general reaction.

c. Vaccinated; killed twenty-two days after virulent inoculation; greater reaction; air cells full of exudate and epithelioid cells; less definite arrangement as tubercles; some caseation; numbers of tubercle bacilli.

d. Vaccinated; killed 110 days after virulent inoculation (controls had all died tuberculous); a few very minute scattered tubercles composed of few epithelioid cells and single layered capsule; a few larger tubercles with caseated centers; no tubercle bacilli; rest of lung tissue apparently completely restored to normal.

returning to a normal appearance without having lost flesh, while the unvaccinated began to decline.

This difference in reaction of the two sets of animals was still more marked on examination of the internal organs. For this purpose one of each set, selecting animals as nearly alike as possible, was killed, every twenty-four hours for the first three days; then on the fifth and eighth days; and thereafter, up to the thirtieth day, at intervals of about four days. The animals were killed by bleeding and the autopsy performed at once. Small selected pieces were taken from the lungs, liver, spleen, and kidneys, hardened in Orth's fluid, embedded in celloidin, and the sections stained; some in hematoxylin and eosin, others by the Ziehl-Neilsen method for tubercle bacilli.

Attention may be drawn to the fact that because these animals were killed at regular progressive intervals, it does not necessarily follow that the lesions will be found in exactly the same proportionate advance. We must allow for differences in the individual resistance, and some variation in the dose no matter how carefully given. However, the periods between each killing have been sufficiently long to allow some definite advance over the preceding ones in each succeeding set.

The following description will be confined to the lungs: I shall take up first a description of the general reaction in each case, and discuss afterward any difference in the specific elements of tubercle formation.

At the end of twenty-four hours, there is a difference between the lungs of the vaccinated and control, evident to the naked eye. The latter appear unchanged. The former are congested and somewhat denser than normal, and scattered through the tissues, or just beneath the pleura, are small punctate hemorrhagic spots. On distention of the lung with fluid these spots for the most part disappear.

Under the microscope we find in both sets of animals the bacilli of the virulent inoculation pretty evenly scattered through the section as small clumps in the capillaries, forming a thrombus composed of bacilli, fibrin and many leucocytes. In the control the reaction has extended little further than this. In the vaccinated animal, however, the way seems to have been prepared for an immediate and powerful reaction. All capillaries throughout the section are greatly congested, and contain many leucocytes. About the foci of bacilli the congestion is very intense, and at some points small hemorrhages have occurred. There is already some exudate containing a number of "epithelioid" cells; *i.e.*, cells with large, clear vesicular nuclei; and similar cells may be seen in the alveoli adjoining the tubercle. These latter are probably in part desquamated epithelium.

In the vaccinated animals, during the next two days, the number of these characteristically formed tubercles has materially increased, as well as their size. The "epithelioid" cells in the center of the tubercle contain numbers of tubercle bacilli. Occasionally these cells containing tubercle bacilli are seen in a neighboring alveolus, or capillary. The bacilli are thus more or less scattered, and are beginning to lose their brilliant stain and regular contour. There is also some evidence of nuclear fragmentation, and a clearer zone in the center of the tubercle, but no sign of necrosis.

In many places the newly formed cells have either coalesced, or their protoplasm has not divided, and we find giant cells made up of a large mass of protoplasm containing several more or less centrally placed, large, vesicular nuclei, and sometimes a number of tubercle bacilli.

At the end of the fifth day we find the lungs of the vaccinated animal very voluminous (not collapsible), very much congested, and speckled with large and small hemorrhagic spots, one or two as large as a pea. Numbers of minute, translucent tubercles can be plainly seen with the naked eye. Under the microscope these differ from an ordinary tubercle of the same size in the unusual amount of exudate and epithelioid cells; in the apparent degeneration of the bacilli in the center of each, and in the spread of exudate and number of "epithelioid" cells to the intervening septa and alveoli. The margins of these tubercles are intensely injected with blood, which, in many places, has escaped from the capillaries.

Where several tubercles are adjacent this congestion and extravasation cover quite a large area and become visible to the naked eye as the hemorrhagic spots already spoken of.

So far the controls have remained much the same as on the first day. The control of this date, the fifth day, shows only slightly greater congestion and density of the lungs than normal. There are no tubercles visible to the naked eye. Under the microscope numerous small tubercles can be made out, varying greatly from the vaccinated in that they are much smaller, contain little exudate, almost no cells of the epithelioid type, and many brightly staining tubercle bacilli, showing no signs of degeneration or inclusion in phagocytes. There is little or no reaction in the intervening septa.

It was thought the hemorrhagic spots spoken of might be due to the remains of the previous vaccination, as they were noticed only in the vaccinated animals, and were so pronounced and constantly present. Therefore, an extra vaccinated animal, which had received no virulent inoculation, was injected with 50 mg. tuberculin, at the same time as an unvaccinated animal which had received a test intravenous inoculation of the virulent culture three weeks previously. Both were killed on the following day. The former showed no reaction to the tuberculin; the latter, a slight one. On section the lungs of the vac-

cinated showed no hemorrhagic spots, and under the microscope no trace of the original vaccination could be found, except one or two very minute clumps of newly formed connective tissue cells, enclosing a couple of old, degenerate-looking tubercle bacilli, all that had remained of the vaccination at the end of sixty-eight days. The lungs of the second animal contained easily visible tubercles, well circumscribed, and with beginning caseation and numerous tubercle bacilli in the center, and a zone of hypercongestion about the periphery, perhaps due to the tuberculin. The hemorrhagic spots, therefore, are evidently a part of the intense reaction produced in the vaccinated animals by the injection of the virulent organism, and not due to any remains of the original vaccination.

The ensuing six pairs of animals were killed at intervals of about four days, and are especially interesting, as this period, from the fifth to the thirtieth day, seems to complete the mastery of the infection by the vaccinated animals and to usher in the final stage to complete absorption of all these inflammatory products, while in the unvaccinated animals the infection progresses gradually to the formation of chronic tuberculous lesions.

If we examine the lungs of the first of these vaccinated animals killed nine days after the virulent inoculation, we are struck by their great alteration, and would be inclined to conclude that the animal was under the influence of a very severe infection. The lungs are very dense and voluminous, do not collapse, are mottled, dusky pink in color, with here and there very dark red hemorrhagic spots. The surface is very irregular, where numerous, sometimes coalescing tuberculous nodules protrude. On carefully examining these they are seen to be of a somewhat more translucent, opalescent appearance than in the control. The lungs of the control of this date present very little alteration to the naked eye. They collapse a good deal, and are only slightly more congested than normal lungs. On careful examination minute, dense, gray-looking tuberculous nodules, scarcely perceptible to the touch, are visible to the naked eye, scattered through the lung tissue. On examining the lungs of the vaccinated animals under the microscope we find the large, opalescent, irregular nodules to be composed of several small, well-defined tubercles, bound together by a mass of exudate, epithelioid and desquamated cells, which fill up the adjoining alveoli and septa, the whole surrounded and permeated by extravasated blood, and highly congested capillaries, which are also packed with leucocytes. The whole has more the appearance of a pneumonia than the gradual, newly forming connective tissue of an ordinary tuberculous process of the same extent. The individual tubercles are filled with large epithelioid cells, with pale vesicular nuclei, with some polymorphonuclears, loosely held together by a plentiful homogeneous exudate. In the center of these is some nuclear fragmentation, but no appearance of beginning caseation. In this portion only are tubercle bacilli to be found, and there are very few indeed, and nearly all fragmented and degenerate-looking. All through these small nodules of exudate, cells and minute tubercles are seen many karyokinetic figures, and giant cells of the type spoken of above, evidences of great cell activity. All sizes and shapes of nuclei are to be seen. The tubercles in the control of this date are much like the previous one, and consist mainly of conglomerate small areas of leucocytic infiltration, containing little exudate, and few epithelioid cells, but many brightly staining, clearly defined bacilli.

The next two succeeding vaccinated animals, killed on the twelfth and seventeenth days, resemble very closely the preceding one. There is, however, a marked diminution in the number of tubercle bacilli, and in the latter one they are exceedingly hard to find. On the twenty-second day the gross appearance has little changed, but on microscopical examination we find a slight clearing up of the cellular exudate in the intermediate tissue, and that the tubercle bacilli have apparently disappeared. The small tubercles are often sharply circumscribed by a single layer of epithelioid cells, and there is, as before, much extravasation of blood within and surrounding them. All these last three animals showed a good deal of cellular detritus in the smaller bronchioles, and occasionally tubercle bacilli could be seen within some of these cells.

In the remaining two vaccinated animals a remarkable change has taken place in the absorption of the cellular exudate from the septa and alveoli lying between the small tubercles, so that this portion of the lung has nearly returned to its normal appearance. The tubercles themselves seem to be breaking up, the central portion dissolving out, while the peripheral capillary ring is reduced to slightly congested vessels, and a number of darkly staining leucocytes. Many of these tubercles have been reduced to nothing more than a few large, pale vesicular cells, surrounded by a small capillary ring whose limits are somewhat emphasized by a greater number of nuclei than normal.

As to the controls, it will be remembered that those up to the seventeenth day showed no very marked reaction. At this date, however, there is a marked advance. In gross appearance they are denser, grayer-looking than in the vaccinated; they are smaller and more sharply marked off from the surrounding tissue. Under the microscope these nodules are composed, like the vaccinated, of several small tubercles joined together by a cell infiltration. Their character, however, differs somewhat. There is less exudate, fewer epithelioid cells, more deeper staining leucocytes, and more cells resembling new connective tissue corpuscles. These last are especially marked in the intervening substance, which thus has a firmer, less succulent appearance. There is also

some karyokinesis. What is of more importance, there are, in the central portion of the individual tubercles, considerable fragmentation and necrosis, and numerous brightly staining tubercle bacilli. Few of these are within cells. In the next succeeding control, killed twenty-five days after inoculation, there is more fragmentation in this portion, with beginning caseation and many bacilli. In the intervening tissue are found numerous fibrous tissue corpuscles, and many giant cells of the small darkly staining eccentric nuclei type generally seen in beginning fibrous tuberculous tissue. In the last control a similar condition exists, though some of the tissue in between these conglomerate tubercles has cleared up, and rarely we may find a small tubercle undergoing resolution. The bacilli are still present in large numbers. It is to be regretted that more animals were not used in this experiment, so that the virulent infection could have been followed in its further stages.[1]

As an ultimate result then, at the end of thirty days, the lungs of the vaccinated are practically free from tubercle bacilli, and nearly entirely cleared of all signs of their invasion; in the controls, on the other hand, the great majority of the tubercles are still progressing, undergoing fragmentation and caseation, and containing many tubercle bacilli in their centers, while their periphery and intervening substance are apparently undergoing a change into more durable fibrous tissue.

Of the elements more or less specific of tubercle formation, I will consider, before closing the giant cells, the "epithelioid" cells and, lastly, the tubercle bacilli.

From the foregoing it will already have been noticed that giant cells of the type represented by a mass of protoplasm containing two or more nuclei, more or less centrally placed, appear in the vaccinated as early as the third day, and continue until the twenty-fifth, reaching their maximum in the seventeenth day, when also some giant cells of more eccentric type accompany them, and a good deal of evidence of cell division. In the controls, on the other hand, giant cells do not make their appearance until the twenty-fifth day, and are then nearly all of the type with eccentric dark staining nuclei seen in fibrous tuberculous tissue. It seems probable that the presence and numbers of giant cells of the vesicular nuclei type, like the nuclei of the "epithelioid" cells, have some dependence on the rapid appearance of large numbers of these cells at the foci of disease in the vaccinated animals.

These epithelioid cells, which appear in the earliest specimens of the vaccinated animals have a good deal of protoplasm, and large vesicular nuclei. It seems hardly likely that they are produced so quickly and in such large numbers from local elements. It is more likely that they come with the excessive exudate from the blood, containing vast numbers of leucocytes. These "epithelioid" cells possess great phagocytic power. From as early as the second day, many may be seen containing four or more tubercle bacilli, mostly in the tubercles, sometimes in an adjacent capillary or alveolus, and later in the smaller bronchioles. This is also true of the giant cells of this type.

The tubercle bacilli show early signs of degeneration in the vaccinated animals, and rapidly diminish between the fifth and ninth days, to disappear almost entirely by the thirtieth day. In a few sections, however, of the vaccinated animals, in spite of the care with which the emulsion was made, a very large clump of tubercle bacilli had lodged, making a more resistant focus, and out of all comparison with the surrounding process. These can be disregarded.

In the controls, on the other hand, although some tubercle bacilli are undoubtedly taken up and destroyed, they are still present in all the specimens in considerable numbers, and in the thirtieth day may be found, apparently little diminished in numbers and virulence, about the fragmentation and caseation which has begun to make its appearance.

In conclusion, then, it may be said about this manner of vaccination, that, within a given time at least, it prepared the way for an immediate and powerful reaction. Apart from the speed and intensity with which it develops, and the proportionate excess of exudate, and of epithelioid elements, this tubercle does not differ in cellular character from the tubercle of the control. It does differ, however, in its ultimate result in that it effects the death of the tubercle bacilli within it, and ends by being completely absorbed. It does not go on to caseation nor the formation of chronic tuberculous tissue. The reason for this must be sought in an increased bactericidal power of the exudate; in the increased capacity or numbers of the phagocytes, the "epithelioid" cells, or, as recent work has shown, a combination of both of these elements.

In these sections it was very difficult to determine the exact boundaries of the cells, and whether the bacilli were actually within or without them, so that a definite difference in phagocytosis between the vaccinated and controls was difficult to determine. Certainly there were much earlier definite evidences of it in the vaccinated, and it was easier to find cells that evidently contained bacilli in those specimens.

[1] The study of the stages up to the sixty-first day was made later on with the second series (See Part I), and in some animals absorption was still in progress on the fiftieth day; otherwise nothing new was developed.

Effect of Digitalis on the Normal Heart.—If medicinal doses of digitalis or strophanthus are given to normal individuals, a distinct slowing of the pulse will be obtained quite regularly, yet the blood-pressure remains within normal limits. A. FRAENKEL (*Münch. med. Woch.*, Aug. 8, 1905) finds however, that the blood-pressure will rise above the normal if the drug is given with atropine. It follows that the slowing of the pulse is the factor which acts against a rise in pressure.

THE VITALITY OF TUBERCLE BACILLI IN SPUTUM.

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This experiment was undertaken to prove how long the tubercle bacillus would live in sputum under natural conditions, it being of interest to know for how long a period the tubercle bacillus in sputum, in articles such as handkerchiefs or in rooms or public places, may retain its vitality, and relative to the question as to the danger of sputum as a cause of infection.

Villemin[1] found that dried sputum preserved its virulence after several weeks. Experiments of Koch,[2] Schill,[3] Fischer and others, have shown that the bacilli retained their vitality in desiccated sputem for several months (nine to ten, De Thoma[4]) but they are said to undergo a gradual diminuation in pathogenic virulence, which is more rapid when the desiccated material is kept at a temperature of 30° to 40° C. Koch dried sputum at the temperature of the laboratory for four to eight weeks and found it still would produce tuberculosis in animals.[5] In his address before the Tenth International Medical Congress, Berlin, 1890, he stated that when exposed to direct sunlight the tubercle bacilli are killed in from a few minutes to several hours, according to the thickness of the layer. He also stated that they are destroyed by diffuse daylight in from five to seven days when placed near a window.

Malassez and Vignal[6] found that sputum alternately dried and moistened for twelve days was yet virulent. Sawizky [7] found that sputum, subjected to the ordinary conditions of the floors of a dwelling house preserved its virulence for a period of two to two and one-half months, and that there was no difference between the sputum obtained from dark corners and that which had been exposed to the sun's rays.

Migneco [8] found that sputum dried on handkerchiefs in the sunlight preserved its virulence for eighteen hours, whereas dried on woolen cloth in sunlight preserved its virulence for thirty hours.

Dr. Arthur Ransom [9] and Mr. Sheridan Delepine, in a series of experiments, found that sputum exposed to light and air for forty-five days in June and July did not produce tuberculosis when inoculated into rabbits; that sputum exposed in an air shaft at dusk during the same season produced slight tuberculosis; that the same sputum exposed at the same time to light and air produced no tubercle in a guinea-pig. The same methods employed, only at dusk, produced advanced tuberculosis. Another sputum exposed in April for sixteen days to little or no air in darkness, produced well-marked tuberculosis. Sputum dried on paper for twenty-four hours and placed in a dark, close cupboard for one day produced well-marked tuberculosis. Sputum kept under the same conditions and exposed to a little air for thirty-five days produced distinct local tuberculosis. Sputum placed in the air shaft of a draught-closet in a dim light, pure air passing through it for three days at ordinary temperature, caused well-marked tuberculosis. Sputum exposed to light for three days, with an hour of sunshine, good ventilation, and a maximum temperature of 50° F., produced no tuberculosis. Other sputum exposed to light for seven days, with fifteen hours of sunshine and brisk ventilation, did not cause tuberculosis. Again, sputum exposed to the light for two days after having been kept dried for four weeks (there had not been much exposure to sunshine and ventilation had been slight) produced no tuberculosis.

Cornet [10] says, "After about six months expectorated material contains not a single germ capable of further development."

The material used in our experiment was obtained by mixing in equal proportions the sputum of two patients, in whom the disease was actively progressing, so as to make reasonably sure of obtaining a virulent, strongly growing organism.

The number of bacilli present in the sputums used showed from vii to viii on Gaffky's scale.

The sputum from each patient was first tested by injecting 0.5 c.c. into the groins of two guinea-pigs. Ninety-one days later the first pig was killed. The pig was emaciated and showed a large open ulcer in the right groin. Tubercle bacilli were obtained from the ulcer. The inguinal glands were enlarged and caseated, and the spleen showed tubercles. After one hundred days the second pig was killed. On autopsy it showed generalized tuberculosis.

The following are the conditions in which the sputum was placed:

First.—Sputum deposited in sterilized, corked and paraffined white glass bottles (the bottles were 3 cm. in diameter and a depth of about 1 cm. of the mixed sputum was placed in each bottle); A, in a dark moist box; B, in a dark closet; C, in the diffuse light of an ordinary room; D, in the sunlight on glass plates (a fairly thin layer of sputum on a Petri dish); E, in the thermostat.

Second.—Sputum deposited in sterilized white glass bottles stoppered with cotton; A, in a dark, moist box; B, in a dark closet; C, in the diffuse light of an ordinary room; D, in the thermostat.

Third.—Sputum deposited in sand in sterilized white glass bottles: A, in a dark, moist box; B, in a dark closet; C, in the diffuse light of an ordinary room. Bottle corked and paraffined. D, in the diffuse light of an ordinary room. Bottle not sealed. E, in the thermostat. Bottle not sealed. F, in the thermostat. Bottle corked and paraffined.

Fourth.—Sputum deposited under ordinary room conditions on: A, handkerchief (folded); B, carpet; C, wood; D, woolen blanket (folded).

Fifth.—Sputum deposited in the open air during the winter months, in open, white glass bottles.

Sixth.—Sputum deposited in sterilized, white glass bottles, corked and paraffined; buried in the ground.

Seventh.—Sputum deposited in sterilized, white glass bottles, packed with ice, corked and paraffined, frozen in blocks of ice.

In the experiment with sputum exposed to sunlight, the specimens when not actually exposed to the sun's rays were kept in a dark box.

The experiment with the sputum placed in sand was not satisfactory. Many pigs died early of septicemia. The sand was not sterilized, and the reclaiming of the sputum from the sand was not certain.

The experiment with the sputum placed in blocks of ice was not entirely satisfactory, as it was not possible to keep the bottles frozen solid. At stated intervals, the sputum under these various conditions was tested by subcutaneous injection into the groins of guinea-pigs. 0.25 c.c. of the sputum was injected into both groins of each pig, and was introduced by a glass hypodermic syringe. The site of injection was washed with five per cent. carbolic acid, and the syringe was carefully boiled between each injection.

One pig was inoculated with each sample of sputum to be tested. If at the end of two to three weeks there was no enlargement of glands, a second pig was inoculated with the same material. After a certain length of time, usually from a month to six weeks, pigs, if still living, were killed. At autopsy, smears from glands and tubercles were made and examined under the microscope.

The following tables show the results of our experiments on the vitality of the tubercle bacillus in sputum under the various conditions as heretofore detailed:

Results were negative in the following instances. With the sputum in glass bottles, stoppered with cotton, placed in the diffuse light of an ordinary room (II*c*), the pigs inoculated at the end of 88 and 100 days died of unknown cause a few days after the injection. With the sputum in glass bottles stoppered with cotton, placed in the thermostat (II*d*), no pig was inoculated between 21 days and 101 days, so that experiment was of no use as a comparison with the other specimens of that set. None of the results with the sputum in sand (III) was entirely satisfactory, owing to the death of many pigs from septic infection a few days after inoculation.

The results were negative in the case of the sputum buried (VI). The pig inoculated after 102 days died at the end of two weeks with no sign of tuberculosis

Conditions of Experiment.	Time of exposure of Sputum. Days.	Death.		Results of Autopsy.							Result + or o
		Days after injection.	Cause.	Glands.			Lungs.	Spleen.	Liver.	Kidneys.	
				Inguinal.	Retroperitoneal.	Smears.					
I*a*. Sputum in corked and paraffined white glass bottles. Dark moist box.	108	53	Killed	Enlarged Caseated	Enlarged Caseated	+	o	+	o	o	+
	141	37	Killed	Enlarged Caseated	Enlarged Caseated	+	o	+	o	o	+
	170	16	Killed	Enlarged Caseated	Enlarged	+	o	o	o	o	+
	188	42	Killed	Not enlarged	Not enlarged	o	o	o	o	o	o
	196	42	Killed	Not enlarged	Not enlarged	o	o	o	o	o	o
I*b*. Sputum in corked and paraffined white glass bottles. Dark closet.	137	41	Killed	Enlarged Caseated	Enlarged	+	o	o	o	o	+
	160	25	Killed	Enlarged Caseated	Enlarged	+	o	o	o	o	+
	188	42	Killed	Not enlarged	Not enlarged	o	o	o	o	o	o
	196	42	Killed	Not enlarged	Not enlarged	o	o	o	o	o	o
I*c*. Sputum in corked and paraffined white glass bottles. Diffuse light. Ordinary room.	124	21	Undetermined	Enlarged Caseated	Not enlarged	+	o	o	o	o	+
	175	32	Killed	Not enlarged	Not enlarged	o	o	o	o	o	o
	189	43	Killed	Not enlarged	Not enlarged	o	o	o	o	o	o

This inoculation could not be repeated, as the specimen was destroyed by mistake.

Summary.—(I*a*) The tubercle bacilli in the sputum in paraffined bottles placed in a dark, moist box, were alive and produced a tuberculous lesion in a guinea-pig at the end of 170 days. No tuberculous lesion was produced after 188 days.

(I*b*) With the sputum in paraffined bottles, placed in a dark closet, a lesion resulted after 160 days, but not after 188 days.

(II*a*) With the sputum in bottles stoppered with cotton, placed in a dark, moist box, a lesion resulted after 157 days, but not after 172 days.

Ic) With the sputum in paraffined bottles, placed in the diffuse light of an ordinary room, a lesion resulted after 124 days, but not after 175 days.

(VII) With the sputum in ice a lesion resulted after 102 days, but not after 153 days.

(III*c*) with the sputum in sand, in a moist, light place, a lesion resulted after 123 days, but not after 148 days.

(II*b*) With the sputum in bottles stoppered with cotton in a dark closet, a lesion resulted after 100 days, but not after 141 days.

(V) With the sputum in open bottles, placed out of doors in the winter months, a lesion resulted after 110 days, but not after 132 days.

(IV*a*) With the sputum in a handkerchief, a lesion resulted after 70 days, but not after 110 days.

(IV*d*) With the sputum in a woolen blanket, a lesion resulted after 70 days, but not after 110 days.

(IV*c*) With the sputum on wood, a lesion resulted after 70 days, but not after 110 days.

Conditions of Experiment.	Day of Experiment.	Hours in direct sun rays.	Death. Days after injection.	Death. Cause.	Results of Autopsy. Glands. Inguinal.	Glands. Retroperitoneal.	Smears.	Lungs.	Spleen.	Liver.	Kidneys.	Result + or o
Id. Sputum on glass plates in sunlight.	1	1	40	Killed	Enlarged Caseated	Enlarged Caseated	+	o	+	o	o	+
	1	7	42	Killed	Not enlarged	Not enlarged	o	o	o	o	o	o
	10	24½	40	Killed	Not enlarged	Not enlarged	o	o	o	o	o	o

Conditions of Experiment.	Time of exposure of Sputum. Days.	Death. Days after injection.	Death. Cause.	Results of Autopsy. Glands. Inguinal.	Glands. Retroperitoneal.	Smears.	Lungs.	Spleen.	Liver.	Kidneys.	Result + or o
Ie. Sputum in corked and paraffined white glass bottles in thermostat.	33	40	Killed	Enlarged Caseated	Enlarged Caseated	+	o	o	o	o	+
	100	40	Killed	Not enlarged	Not enlarged	o	o	o	o	o	o
	115	42	Killed	Not enlarged	Not enlarged	o	o	o	o	o	o

Conditions of Experiment.	Time of exposure of Sputum. Days.	Death. Days after injection.	Death. Cause.	Results of Autopsy. Glands. Inguinal	Glands. Retroperitoneal.	Smears.	Lungs.	Spleen.	Liver	Kidneys.	Result + or o
	108	53	Killed	Enlarged Caseated	Enlarged Caseated	+	o	o	o	o	+
IIa. Sputum in white glass bottles, stoppered with cotton. Dark moist box.	141	38	Killed	Enlarged Caseated	Enlarged	+	o	o	o	o	+
	157	42	Killed	Enlarged Caseated	Enlarged Enlarged	+	o	+	o	o	+
	172	40	Killed	Not enlarged	Not enlarged	o	o	o	o	o	o
	190	43	Killed	Not enlarged	Not enlarged	o	o	o	o	o	o
	61	76	Killed	Enlarged Caseated	Enlarged Caseated	+	o	o	o	o	+
IIb. Sputum in white glass bottles, stoppered with cotton. Dark closet.	100	61	Killed	Enlarged Caseated	Enlarged	+	o	+	o	o	+
	141	32	Killed	Not enlarged	Not enlarged	o	o	o	o	o	o
	161	40	Killed	Not enlarged	Not enlarged	o	o	o	o	o	o
	33	40	Killed	Enlarged Caseated	Enlarged	+	o	+	o	o	+
IIc. Sputum in white glass bottles, stoppered with cotton. Diffuse light. Ordinary room.	109	31	Killed	Not enlarged	Not enlarged	o	o	o	o	o	o
	132	30	Killed	Not enlarged	Not enlarged	o	o	o	o	o	o

Conditions of Experiment.	Time of exposure of Sputum. Days.	Death. Days after injection.	Death. Cause.	Results of Autopsy. Glands. Inguinal.	Glands. Retroperitoneal.	Smears.	Lungs.	Spleen.	Liver.	Kidneys.	Result + or o
IId. Sputum in white glass bottles, stoppered with cotton in thermostat.	21	42	Killed	Enlarged Caseated	Enlarged	+	o	+	o	o	+
	101	17	Undetermined	Not enlarged	Not enlarged	o	o	o	o	o	o
	132	46	Killed	Not enlarged	Not enlarged	o	o	o	o	o	o
	157	40	Killed	Not enlarged	Not enlarged	o	o	o	o	o	o

Conditions of Experiment.	Time of exposure of Sputum. Days.	Death. Days after injection.	Death. Cause.	Results of Autopsy. Glands. Inguinal.	Glands. Retroperitoneal.	Smears.	Lungs.	Spleen.	Liver.	Kidneys.	Result o or +
IIIa. Sputum in sand. Moist dark box.	108	49	Killed	Not enlarged	Not enlarged	o	o	o	o	o	o
	171	42	Killed	Not enlarged	Not enlarged	o	o	o	o	o	o
IIIb. Sputum in sand. Dark closet.	62	78	Killed	One slightly Enlarged	Not enlarged	o	o	o	o	o	o
	108	49	Killed	Not enlarged	Not enlarged	o	o	o	o	o	o
IIIc. Sputum in moist sand. Diffuse light. Ordinary room.	77	53	Killed	Enlarged Caseated	Enlarged Caseated	+	o	+	o	o	+
	123	21	Killed	Enlarged Caseated	Not enlarged	+	o	o	o	o	+
	132	17	Undetermined	Slightly Enlarged	Not enlarged	o	o	o	o	o	o
	148	40	Killed	Not enlarged	Not enlarged	o	o	o	o	o	o

Conditions of Experiment.	Time of exposure of Sputum. Days.	Death. Days after injection.	Death. Cause.	Results of Autopsy. Glands. Inguinal.	Glands. Retroperitoneal.	Smears.	Lungs.	Spleen.	Liver.	Kidneys.	Result + or o
IIId. Sputum in dry sand. Diffuse light. Ordinary room.	30	76	Killed	Enlarged Caseated	Enlarged	+	o	o	o	o	+
	70	39	Killed	Not enlarged	Not enlarged	o	o	o	o	o	o
IIIe. Sputum in dry sand in thermostat.	30	79	Killed	Not enlarged	Not enlarged	o	o	o	o	o	o
IIIf. Sputum in moist sand in sealed bottle in thermostat.	62	47	Killed	Not enlarged	Not enlarged	o	o	o	a	o	o

Conditions of Experiment.	Time of exposure of Sputum. Days.	Death. Days after injection.	Death. Cause.	Results of Autopsy. Glands. Inguinal.	Glands. Retroperitoneal.	Smears.	Lungs.	Spleen.	Liver.	Kidneys.	Result + or o
IV*a*. Sputum on handkerchief, folded.	31	99	Killed	Enlarged Caseated	Enlarged Caseated	+	+	+	+	o	+
	70	39	Killed	Enlarged Caseated	Enlarged	+	o	+	o	o	+
	110	35	Killed	Not enlarged	Not enlarged	o	o	o	o	o	o
	115	40	Killed	Not enlarged	Not enlarged	o	o	o	o	o	o
IV*b*. Sputum on carpet.	38	91	Killed	Enlarged Caseated	Enlarged Caseated	+	+	+	+	o	+
	70	30	Killed	Not enlarged	Not enlarged	o	o	o	o	o	o
	88	38	Killed	Not enlarged	Not enlarged	o	o	o	o	o	o
IV*c*. Sputum on wood.	39	67	Killed	Enlarged Caseated	Enlarged	+	o	o	o	o	+
	70	60	Killed	Enlarged Caseated	Enlarged Caseated	+	o	+	o	o	+
	110	36	Killed	Not enlarged	Not enlarged	o	o	o	o	o	o
	130	36	Killed	Not enlarged	Not enlarged	o	o	o	o	o	o

Conditions of Experiment.	Time of exposure of Sputum. Days.	Death. Days after injection.	Death. Cause.	Results of Autopsy. Glands. Inguinal.	Glands. Retroperitoneal.	Smears.	Lungs.	Spleen.	Liver.	Kidneys.	Result + or o
IV*d*. Sputum on woolen blanket, folded.	39	67	Killed	Enlarged Caseated	Enlarged	+	o	o	o	o	+
	70	60	Killed	Enlarged Caseated	Enlarged	+	o	+	+	o	+
	110	51	Killed	Not enlarged	Not enlarged	o	o	o	o	o	o
	131	42	Killed	Not enlarged	Not enlarged	o	o	o	o	o	o

Conditions of Experiment.	Time of exposure Days. of Sputum.	Death. Days after injection.	Death. Cause.	Results of Autopsy. Glands. Inguinal.	Glands. Retroperitoneal.	Smears.	Lungs.	Spleen.	Liver.	Kidneys.	Result + or o
V. Sputum in open white glass bottles, outdoors, winter months.	31	47	Killed	Enlarged Caseated	Enlarged	+	o	o	o	o	+
	110	38	Killed	Enlarged Caseated	Enlarged	+	o	+	o	o	+
	131	38	Killed	Not enlarged	Not enlarged	o	o	o	o	o	o
	164	40	Killed	Not enlarged	Not enlarged	o	o	o	o	o	o
VI. Sputum in corked white glass bottles buried in ground.	22	40	Killed	Enlarged Caseated	Enlarged	+	o	+ (?)	o	o	+
	102	13	Undetermined	Not enlarged	Not enlarged	o	o	o	o	o	o
VII. Sputum in blocks of ice.	102	29	Killed	Enlarged Caseated	Slightly Enlarged	+	o	o	+	o	+
	136	14	Undetermined	Not enlarged	Not enlarged	o	o	o	o	o	o
	155	42	Killed	Slightly Enlarged	Not enlarged	o	o	o	o	o	o

(I*c*) With the sputum in paraffined bottles, in the thermostat, a lesion resulted after 33 days, but not after 100 days.

(IV*b*) With the sputum on carpet, a lesion resulted after 39 days, but not after 70 days.

(III*d*) With the sputum in sand, in a dry, light place, a lesion resulted after 30 days, but not after 70 days.

(I*d*) With the sputum exposed to direct sun rays, a lesion resulted after one hour, but not after seven hours.

It appears that the conditions most conducive to the prolonged life of the tubercle bacillus in sputum are darkness and moisture. In our experiment, the bacilli under these conditions were alive at the end of five and a half months. Dryness hastens their destruction. A temperature of about 37° C. is less favorable for them than ordinary room temperature. A temperature near the freezing point is less favorable for them than ordinary room temperature. The direct sun rays kill them in a few hours.

My acknowledgments are due to Dr. E. L. Trudeau for the opportunity to try this experiment, to Dr. Lawrason Brown for suggesting it, and to Mr. Edgar J. Higgins and Dr. A. M. Forster for their kind assistance.

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THE SERUM DIAGNOSIS OF TUBERCULOSIS.[1]

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AFTER it was found that the serum of animals that had been injected with bacteria possessed agglutinating power over the same bacteria, and that the serum of man agglutinates typhoid, cholera, and plague if he suffers from typhoid, cholera, and plague, it was suggestive that the blood of tuberculous individuals would agglutinate tubercle bacilli. But tubercle bacilli offer a great obstacle to such an investigation, because they form in their cultures compact masses, which are already, to some extent, in an agglutinated condition.

Arloing overcame this difficulty by cultivating the bacilli for a considerable time on potatoes, till the cultures obtained a smooth appearance. He then transferred them to the beef broth with six per cent. glycerin. In this way he finally obtained a culture that grew evenly distributed throughout the liquid; that is to say, the culture became homogeneous.

Together with Paul Courmont, he found that homogeneous tuberculous cultures can be agglutinated by the serum of several kinds of animals, when these animals are inoculated by tuberculin or by attenuated cultures of tubercle bacilli. They also found that the normal blood serum of certain animals is able to agglutinate the homogeneous cultures, but with much less activity than when these animals are infected with the tubercle bacillus, or injected with its products.

A sufficient number of tests were made on human beings to convince them that the serum agglutination can be used in the diagnosis of tuberculosis, and they regard the test of equal value to Koch's tuberculin.

Many scientists of various nationalities have made publications absolutely confirmative and based on a large number of cases. Other investigators, and particularly in Germany, have obtained very different results. At the present time, however, the serum-agglutination test for tuberculosis is still in doubt.

The chief objections to the test are due to the following facts; namely, that the serums of quite a number of healthy individuals and of patients with other diseases are able to agglutinate homogeneous tuberculous cultures, and also that in some patients with well-marked symptoms of tuberculosis in the incipient or advanced stages the reaction is wanting.

In spite of these contradictory results Arloing and Courmont still firmly maintain that an individual whose blood serum agglutinates a homogeneous tuberculous culture at 1 to 5 is tuberculous, and if at 1 to 10 he is tuberculous without a doubt; and that the serum reaction reaches its highest grade of intensity when the lesions are slight.

The contradictory results are partly due to the differences in the cases tested. The general condition of the patient, and the stage and severity of the disease have great influence on the agglutination. The reaction can also vary during the course of the disease. In five far-advanced cases, four fail to react, while in thirty-eight patients which included healed, incipient, and advanced cases, five failed to react. In giving percentages, therefore, it seems fair to exclude the far-advanced cases, in which the diagnosis is plain without other means of help.

The chief reason for the difference in the results rests with the test culture used. In spite of the clear directions given by Arloing and Courmont, the preparation of the culture is extremely difficult, and it is very hard to have always on hand a culture at standard strength. In order to avoid this difficulty, Koch and Romberg have modified the method of Arloing and Courmont, and used emulsions of dead bacilli instead of living homogeneous cultures. These emulsions are much more easily prepared, and the results are much more uniform.

1 From the Saranac Lake Laboratory,

In the following tests the "A" homogeneous culture of Arloing and Courmont was the one used. It was kindly given by Dr. Paul Courmont during his recent visit to America. The tests were all made with cultures which were standardized as accurately as possible. Where there was any doubt that the culture was at standard strength the test was not counted.

The culture was grown in the following medium:

Peptone (Witte	20
Sodium chloride	10
Glycerin	40
Water	1000

This was neutralized with normal soda solution. This is the formula given by Dr. Paul Courmont, with the exception that Witte's peptone was used instead of Dufresne's (French peptone). The standard serum was obtained from a normal sheep, whose serum was found to constantly agglutinate at 1-25. Clear fresh human serum was used to make the tests. It was obtained either from the lobe of the ear or from a vein in the arm.

With each serum, mixtures of different strengths were prepared at 1 to 5, 1 to 10, 1 to 15, and so on; that is, to one drop of serum five drops of culture are added, etc. Or, else, it was done by adding to—

.2 of serum	.8 of culture (1-5)
.1 of serum	.9 of culture (1-10)
.06 of serum	.94 of culture (1-15) etc.
.04 of serum	.96 of culture (1-25)

Comparative tests were made with these methods, and as they were the same, the latter one was used. The former, however, is simpler, and can be used with better advantage when one has a small amount of serum.

When agglutination took place in a dilution of 1 to 5, the reaction was considered positive. The time limit given to the reaction was five hours, —not more. A well-developed, actively growing culture of a month's growth was removed from the incubator and placed in the ice chest. It was used for a month, or as long as it was agglutinated by the standard serum up to the proper dilution. The necessary quantities of culture were taken and diluted with normal salt solution (0.8 per cent.) until the mixture became slightly milky.

Agglutination was observed by the naked eye up to five hours. Results were considered positive only in those tubes which showed well-marked flocculi easily visible to the eye, and with subsequent sedimentation and clearing.

Results.—One hundred and twenty-four serums were tested. I found later, however, that the culture was not at standard strength in sixty-two of these, and they were excluded. Sixty-two, therefore, remain to be reported on.

Of these 62 cases, 43 were tuberculous, 12 were apparently in robust health, and 7 were more or less suspicious as having tuberculous disease. In these 7 there was no positive evidence of tuberculosis, and they were not tested with tuberculin. Of the 43 tuberculous cases 34 reacted and 9 failed; of the 12 healthy cases, 9 reacted and 3 failed; of the 7 *suspicious* cases, 7 reacted and none failed.

Of the tuberculous cases there were, 2 healed patients; 1 reacted and 1 failed; 3 patients that reacted to the tuberculin test, 3 reacted; 9 incipient cases, 8 reacted and 1 failed; 24 advanced cases, 21 reacted and 3 failed; 5 far advanced cases, 1 reacted and 4 failed.

It is thus seen that nearly all the more favorable cases gave positive reaction (*i.e.*, 86.8 per cent.), and that only one of 5 far advanced cases reacted.

The average agglutinating power of the tuberculous serums that reacted was 1 to 10, whereas the average agglutinating power of the healthy serums that reacted was 1 to 23.

Conclusions.—1. In far advanced cases with very extensive or virulent lesions the serum reaction is generally absent.

2. The reaction seems to appear most often with the most favorable cases.

3. A certain number of favorable cases with well-marked signs of disease fail to show any agglutination.

4. Nine out of 12 persons in robust health reacted to the test. Six of the 9 were in close contact with tuberculous patients.

5. In the tuberculous cases the average agglutinating power was 1 to 10; in the healthy cases the average agglutinating power was 1 to 23.

6. Up to the present time I do not rely on the serum test as being a sure and reliable one for the presence or absence of clinical tuberculosis.

MEDICAL PROGRESS.

SURGERY.

Scopolamine-Morphine Anesthesia.—M. G. Seelig (*St. Louis Med. Rev.*, Aug. 12, 1905) reports a series of sixty-five cases in which general anesthesia was preceded by the administration of scopolamine hydrobromate, grain 1-100, and morphine, grain 1-6, hypodermically. The general anesthesia was induced by means of the ethyl chloride-ether sequence. The series included the following range of cases: Abdominal hysterectomy, 8; vaginal hysterectomy, 6; hernia, 5; plastic operations, 8; operations on the tubes and ovaries, 11; uterine fixations, 6; curetterments, 6; hemorrhoids, 3; fistula in ano, 2; thyroidectomy, craniectomy, orchidectomy, appendicectomycostectomy, nephropexy, tumor of the breast, cyst of neck, pelvic abscess, exploratory laparotomy, one each. The author claims that as a result of his experience with this method, that he has never seen such good results with other methods. Of these sixty-five cases only one patient vomited or retched while on the operating table. Seventy-seven per cent. of the patients did not vomit at at all. One-third of the patients that did vomit, did so only once, and then only from two drams to one ounce of clear mucous. Nausea was never pronounced, except in two cases, and vomiting never occurred earlier than two hours after the operation. The quantity of anesthetic necessary was markedly lessened. After the administration of scopolamine-morphine the patients are in a peace-

ful state of mind, and go under the influence of the general anesthetic without passing through the usual state of excitement. Salivation is almost invariably absent, thus adding another safeguard against aspiration pneumonia. After their return to bed the patients lie absolutely quiet and awaken without the slightest excitation. The first twenty-four hours following the operation is attended by much less pain and discomfort than in cases where the scopolamine is not administered.

Parietal Motor Nerves in Abdominal Section.—The apparent lack of attention that is paid by the majority of operators to the trunks or distribution of nerves supplying the abdominal region is commented upon by V. P. BLAIR (*Interstate Med. Jour.*, August, 1905) who carefully considers the subject and who gives the best methods of incisions so as to avoid cutting these nerve supplies. The author states that in the severance of motor nerves of the abdominal wall, that large areas of the abdominal parietes are deprived of their contractile power, thus causing the unparalized portions to bring about compensation by extra effort. When this compensation is defective there will be a tax on the involuntary muscles, which, if too great, will result in exhaustion, imperfect function and neurosis. All motor nerves and their distributions should be carefully considered in making abdominal incisions. The least harmful is that made in the median line and in the linæ semilunares. In other incisions, especially when they have to be lengthened, the author lays great stress upon the fact that they should be enlarged by tearing by means of hooks on the fingers and not cut.

Ligature of the Innominate Artery.—In reporting a case of aneurism of the innominate successfully treated by ligaturing WILLIAM SHEEN (*Annal. of Surg.*, July, 1905) thoroughly reviews the subject. Seven times only has this operation been successful. The author's operation was as follows: Median incision from cricoid to one inch below sternal notch; the carotid and innominate exposed and freed; then a double floss silk ligature carried around the innominate distally and tied with Balance's "stay knot." Pulsation ceased, but later reappeared. A second similar operation also failed. The third operation was performed through a five-inch transverse incision above the clavicle. The artery was ligated twice proximally. Recovery uneventful. Abstracts of previous recorded cases are given. In 36 cases ligature has been accomplished; mortality 78 per cent. Of fatal cases 24 were due to sepsis and hemorrhage combined; 3 to sepsis alone; 3 to cerebral lesions; 1 to acute pericarditis; 1 to pus kidney and 1 to bronchopneumonia. Of recoveries only one occurred during the preantiseptic period. Conclusions drawn are: (1) in properly selected cases the operation is reasonably safe; (2) suitable cases are those of the globular and circumscribed variety; (3) the maintenance of asepsis is the chief factor for success; (4) the incision should be central with horizontal and vertical division of the manubrium, if necessary; (5) the carotid be tied also; (6) the ligature should be silk; (7) some injury of the inner coats is probably necessary to insure occlusion; (8) two ligatures, if possible, be placed; (9) drainage is inadvisable; (10) cerebral lesions stand next to sepsis as cause of death; (11) "Valsalvan" methods prior to operation are inadvisable.

Surgical Treatment of Colitis.—Following some preliminary remarks upon the classification of colitis and the physiology of the appendix and cecum J. E. SUMMERS, JR., says (*Annal. of Surg.*, July, 1905) physiologists are beginning to recognize the necessarily important part the appendix, cecum, and ascending colon take in digestion. The fad of the day seems to be that the whole colon is simply a sewer canal, but its importance in digestion is proven by its glandular structure. Any interference of function reacts, producing either appendicitis or colitis. An interesting and important topic is the observation by means of the X-rays and bismuth impregnated food that antiperistalsis is a constant factor in the digestive process of the large intestine. This admits of thorough mixing and absorption of the contents. Also experiments on the disposition of nutrient enemata, similarly conducted, demonstrated that these were ultimately carried to the cecum, absorption taking place chiefly above the descending colon. Anything which disturbs the antiperistalsis is apt to induce an inflamation of the colon. Surgically, colitis is divided into three classes; primary bacterial, secondary bacterial, and that induced by mechanical interference. Upon these causes hinges the surgical treatment, and if carried out intelligently, will be successful. It will not do to confine all cases to a right inguinal colostomy. This was first selected for bacteriological cases, but even here Gibson's operation has many advantages. In the appendicular forms of colitis removal of the appendix is all that is required in the explosive form. Whereas in the neurasthenic type of Deaver not only should the appendix be removed, but Gibson's fistula ought to be established. If this does not produce a return to health then some operation for exclusion must be done.

Thyroidectomy for Exophthalmic Goiter.—In a contribution comparing the surgical treatment of exophthalmic goiter, F. HARTLEY (*Annal. of Surg.*, July, 1905) reports 15 cases of partial throidectomy with 93.4 per cent. cures. In the literature there are five instances where symptoms have returned after operation. Tetany and sudden death have been known to occur during or just after operation. Medicinal treatment should precede surgical interference, because of undoubted cures, but should not be continued too long, since the disease tends to diminish the vital resistance and exhaust the nerve centers. Early operation is indicated in all cases as soon as medicinal treatment fails, and especially so where the disease is engrafted upon colloid goiter. The anesthetic used in this series was ether or gas and ether. The extirpation of the greater part of the growing gland is made in all cases. The method employed was Kocher's. Fourteen of these patients seen postoperatively are in good health; anxiety, nervousness and muscular tremor all gone, and in all but three cases the exophthalmos has disappeared. One patient died during operation; mortality, 6.6 per cent. Partial thyroidectomy is compared with sympathectomy; statistics given. Results are shown to be about equal, but with the advantage in favor of thyroidectomy, both as regards mortality and cures.

Tuberculous Lymph-Nodes.—The surgical treatment of tuberculous lymph-nodes, with a study of one hundred cases, is presented (*Annal. of Surg.*, July, 1905) by CHARLES N. DOWD. Three generalizations are important. (1) The disease is serious. (2) Thorough extirpation is better than partial removal or palliative measures. In 692 cases treated constitutionally, 29.2 per cent. later developed tuberculosis in other parts. (3) The prognosis is better in children than in adults. The disease usually begins insidiously. A majority of the patients live in unsanitary surroundings. The throat is the most common portal of infection. There is abundant evi-

dence that the bacilli can go through mucous membrane and infect lymphatics without leaving visible evidence of their transit. The diagnosis is not always easy. Syphilitic enlargement and simple hyperplasia often offer difficulties. The anatomical arrangement is considered with drawings. The operation is described under the following headings: (1) Incisions. (2) Structures to be removed and avoided. (3) Details as to time and wound treatment. The incisions are important. Disfiguring scars are and usually can be avoided. Longitudinal scars stretch and frequently thicken. Transverse scars following the neck-creases do not stretch, and after a short time are almost invisible. Description of incisions and accessible glands are given. The nodes are to be removed with as little surrounding tissue as possible. Structures to be avoided are the internal jugular vein, the spinal accessory nerve, and the lower fibers of the facial nerve. It is not often necessary to divide the sternomastoid muscle. Injury of the thoracic duct has been recorded. Plenty of time should be given to the operation, but it should not be unduly prolonged. For a child under twelve years it is seldom wise to continue longer than one hour at a time. Irrigation is desirable, and as a routine drainage is advised. The dressings should be bulky and changed daily. In this series there was no mortality; freedom from recurrence in 75 per cent., and ultimate recovery in 90 per cent. of the cases.

X-Ray in Malignant Disease.—W. B. Coley, basing his observations upon the result of over three years' tireless investigation, discusses (*Annal. of Surg.*, August, 1905) the value of the X-ray in the treatment of cancer, including sarcoma. During the time specified 176 patients were treated, as follows: 68 cases of sarcoma; 36 of carcinoma of the breast; 44 of epithelioma of the head, face and neck, including tongue; 14 of deep-seated abdominal growths, probably carcinoma; 5 not classified; 3 of tuberculous glands of the neck; 3 of Hodgkin's disease; 3 of lupus. In five cases of sarcoma there was complete disappearance of the growth, but in all it recurred a few months later. In two of these the recurrent growth disappeared under combined X-ray and toxin treatment, the patients remaining well to date. The 36 cases of carcinoma of the breast furnished nearly every variety of this disease. The treatment was almost wholly negative. In only one patient did the tumor disappear, and in this case the diagnosis was in doubt. Of the 44 cases of epithelioma of the head, face and neck, in only four did the disease disappear entirely. In every case in which there was glandular involvement, no improvement whatever was noticed, and the rays had little, if any, effect in retarding the disease. One patient suffering with Hodgkin's disease improved markedly at first, but later died suddenly. No autopsy. There was complete disappearance of lupus in two patients, and improvement in the third. In one patient tuberculous glands of the neck decreased in size; in one they disappeared, and in the third there was slight involvement. Reports from several other series of observations agree fully with this. Of late the X-ray as a preoperative measure has been advocated, the reason given being that the operative field is thus cleared. The fallacy of such reasoning is twofold: (1) It presupposes that the agent is curative, and (2) it takes for granted that no harm can come to the patient by reason of delay. Both of these arguments are pernicious.

PATHOLOGY AND BACTERIOLOGY.

Laryngeal Diphtheria Complicating Cerebrospinal Meningitis.—W. K. Simpson (*Med. Rec.*, Sept. 16, 1905) reports this case to demonstrate that cerebrospinal meningitis and true diphtheria may coexist in the same patient, and that the respective germs are not necessarily antagonistic. The patient, a married woman, aged twenty-seven years, was taken down with a classical attack of cerebrospinal meningitis. Twenty-one days later and while in the midst of her cerebrospinal symptoms she gave evidence of hoarseness, a croupy cough, and beginning laryngeal dyspnea. Examination of the larynx revealed the entire lumen filled with a distinct thick membrane. Intubation became necessary and subsequently large pieces of membrane were expelled through the tube, from which a pure culture of the Klebs-Löffler bacillus was obtained, confirming the diagnosis. During a period of nine days 30,000 units of antitoxin was administered, and since this case occurred at the time when the use of antidiphtheria serum was being advocated in the treatment of cerebrospinal meningitis, the effect was carefully noted. No appreciable influence was observed upon the course of the meningitis. Once during and twice after the period of serum treatment, lumbar puncture was performed, and in each instance there was found the characteristic *Meningococcus intracellularis*. It is possible to suppose that if diphtheritic antitoxin was in any way antagonistic to cerebrospinal meningitis its administration would show effect in the destruction of these cocci.

The Trichocephalus in Typhoid Fever.—Following up the observations of Gujart, Giuseppe Spezia reports (*Med. Rec.*, Sept. 16, 1905) nineteen cases of typhoid fever, in seventeen of which the eggs of the *Trichocephalus* were noted in the stools. The presence of the eggs seemed to have no special relation to the day of the disease or to the physical character of the feces. In other diseases, especially of the gastro-intestinal tract, these eggs are rarely seen. These observations lead to the conclusion that this intestinal parasite, from its ability to wound the intestinal mucosa, plays an important rôle as a predisposing etiological factor to typhoid infection. That the development of the *Trichocephalus* is not a natural consequence of this disease is disproved by the fact that the growth of the parasite from the egg in the stomach to its adult stage covers a month and more; whereas the eggs are found in typhoid stools during the first few days.

Etiology of Syphilis.—In order to become acquainted with the appearance of the *Cytorrhyctes luis*, J. Siegel (*Münch. med. Woch.*, July 11, 1905) states that it is absolutely necessary to become familiar first with the artefacts which are liable to be found in normal blood. If a drop of normal blood be examined under a cover-glass with a high power, small, movable granules and filaments will soon separate out owing to the breaking down of the cells. In syphilis the structures have a more definite shape and size, and are much more refractile. The more characteristic forms are distinctly flattened and pear-shaped and possess a rapid, jerky motion owing to the presence of flagellæ. This motion will at once cease if a small amount of chloral hydrate is added to the blood. On permitting the blood to dry out under the cover-glass, a distinct nucleus with 2 to 16 refractile granules will be evident. The organisms are most numerous in

the blood during the second and third week of the disease, and are particularly abundant in the secretion of the primary sore. The staining is rather difficult, but the nuclei are brought out well by a combination of hematoxylin and azur, while the flagellæ are rendered prominent by the older method of Giemsa for plasmodia. Proof that the organisms stand in definite relation to syphilis is to be found in the fact that they occur in large numbers in the blood of apes which have been inoculated with syphilitic virus. Some further notes on the *Spirochæta pallida* are to be found in an article by C. THESING (*Münch. med. Woch.*, July 11, 1905). This author denies all etiological relation, and states that in many cases the spirilla are not derived from the interior of the lesions, but from the surface of the skin or from the stain, which harbors many organisms unless boiled shortly before use. Structures corresponding in every way to the organisms described by Schaudinn and Hoffmann were also found in the smegma of absolutely healthy individuals.

Blood-Pressure Observations for the Practising Physician.—CLINTON E. BRUSH (*Am. Med.*, July 15, 1905) speaks of the importance of using a cuff at least 12 cm. wide, as the error in cuffs that wide or wider may be disregarded. The importance of obtaining both diastolis and systolic pressures is emphasized—the method of Strassburger for determining diastolic pressures being deemed sufficiently accurate for ordinary work. He concludes (1) both systolic and diastolic pressures should be taken. (2) The cuff on the instrument should be at least 12 cm. wide. (3) With the wide cuff the normal systolic blood-pressure for the healthy adult male is nearer 110 mm. Hg. than it is 130 mm. Hg. (4) The chief value of blood-pressure observations lies in the lead they give in regard to indications for and results of treatment. (5) In a few conditions they are of diagnostic value. (6) In many conditions blood-pressure observations are of no practical value.

Pathogenesis of Myelogenous Leucemia.—Myelogenous leucemia is characterized by A. JOUSSET (*Arch. de Méd. Exper.*, July, 1905) as a chronic septicemia whose infective agent causes definitive lesions in the hemapoietic organs, lesions which survive the infection and which imprint their special seal upon the syndrome. The author has isolated a number of germs in this condition, but does not believe that they are specific. What is really specific is the mode of reaction of the tissues.

Effect of Experimental Cholemia in the Cardiac Ganglia.—It is well known that bradycardia frequently results from icterus; the question presented itself to R. MALATESTA (*Arch. de Méd. Exper.*, July, 1905) whether this condition might not be due to pathological changes in the cardiac ganglia. With the object of deciding this question he experimented in rabbits, producing an icterus by means of ligatine of the common duct. Examination of the cardiac ganglia revealed a peripheral chromatolysis, which gradually extended throughout the entire cell body, a coloration of the achromatic substance, a vacuolization of the cell-body and a production of a homogeneous condition of the nucleus. In some cases the cardiac ganglia are not affected. The author does not believe that the bradycardia is due to the pathological changes in the ganglia. These changes are found likewise in other parts of the nervous system, and so far as they affect the cardiac ganglia, they are not severe. Similar changes have been found in intoxications that result in a rapid pulse.

Bacteriology of Bronchitis.—The sputum of bronchitis, secondary to heart disease or emphysema, has never been found absolutely sterile by J. KARCHER (*Deutsch. Arch. f. klin. Med.*, Vol. 83, Nos. 3 and 4), but as a rule the germs present were scant in number and of diminished vitality. Streptococci and staphylococci were most numerous, less often pneumococci were encountered. In acute and subacute processes, the bacteria were more abundant, but as a rule the same varieties predominated.

Influence of the Roentgen Rays on Leucemia.—In order to study the effects of the Roentgen rays on leucemia, J. LOSSEN and P. MORAWITZ (*Deutsch. Arch. f. klin. Med.*, Vol. 83, Nos. 3 and 4) studied the blood, urine and wherever possible the organs. Thus in a case of myelogenous leucemia the leucocytes had returned to the normal number and the excess of uric acid in the urine disappeared, so that the white cells were probably formed less abundantly in the hematopoietic organs. In other cases, however, where an extreme leucopenia resulted, the percentage of uric acid remained unaltered. Under the influence of the X-rays the proportion of the different forms of leucocytes may return to the normal or, on the other hand, an aplastic leucyemia may result. The organs very often show a decided hypoplasia.

Pathogenesis of Icterus.—S. ABRAMOW (*Virchow's Archiv*, Vol. 181, No. 2) has applied special staining methods which have enabled him to trace the course of the finer bile capillaries in the liver in various pathological processes accompanied with jaundice. Normally, the epithelium of the capilliaries is soon replaced by a mere cuticle border. The capillary itself courses in the axis of the acinus and constantly anastomoses with neighboring capillaries. Small branches are given off throughout the entire interacinous course, which enter the cells and often end blindly near the nucleus. Wherever the flow of the bile is impeded owing to the presence of a stone or a tumor involving the biliary ducts, extreme dilatation of these blind ends will occur so that they extend to the vascular border of the cell. Eventually rupture takes place, so that the bile has free access to the perivascular, lymphatic spaces. It has been found, however, that an obstructive jaundice is also possible if the thoracic duct is ligated; this is explained by the fact that the dilated capillaries will exert pressure upon the accompanying blood vessels and erode their walls. The icterus of cirrhosis of the liver is due to compression of the finer bile-capillaries by connective tissue while the icterus of heart disease is partly explained by connective tissue, partly by the formation of thrombi of inspissated bile, which impede the flow downward. In destructive processes in the liver, such as accompany tumors, it is evident that the walls of the bile-capillaries may be eroded and that the bile may find free access to the perivascular spaces. Lastly, jaundice may be a symptom of pure functional disturbance of the liver, as in infectious diseases and in icterus neonatorum. In these cases it is likely that the cells themselves are at fault and that there is an increased production of bile with possibly a diminished pressure in the capillaries.

Staining Leucocytes in the Counting-Chamber.—In order to obviate the examination of a smear to obtain a differential leucocyte count, W. RIEBES (*Münch. med. Woch.* Aug 1, 1905) employs the

following solutions: (1) Methylene blue, 0.05; formalin, 1.0; distilled water, 100.0, to which are added three drops of formalin. (2) Eosin, 0.05; formalin, 1.0; distilled water, 100.0. The first solution is sucked up five times to the mark 1 of the pipette and once to the mark 0.5, then blown into a clean glass dish. The blood is then sucked into the pipette up to the desired height, then diluted with the above amount of methylene blue solution, and finally with the eosin solution up to the mark 101. By allowing the first solution to act before the second, a satisfactory staining of all the elements in the blood will always be obtained.

EYE, EAR, NOSE AND THROAT.

Voluntary Iris.—J. W. SHERER, *Journal A. M. A.*, May 6, 1905) reports a case of this rather rare condition. It was first noticed at the age of nine, when the child developed the power of voluntary rotating the eyeballs independently. After that it became a matter of common observation that the iris could be dilated at will, almost to the disappearing point. At puberty the right iris was for awhile twice the size of the other, but later they became equal again. The power to stimulate convergent strabismus is possessed by the woman to a remarkable degree. Vigorous exercise of the iris movements seem to cause slight aching of the eyes, but no other inconvenient symptoms are reported.

Cause of Progressive Myopia.—Myopia is a result of deficiency of the posterior half of the sclerotic generally due to absence or poor development of the elastic fibers, which normally are very abundant. The lateral pressure, exerted by the external muscles of the eye, will causee a bulging of the posterior pole, as a result of which the sagittal axis will become longer. The thickness of the sclerotic is also of importance, since a thin layer will hasten, a thick one retard, the process. The stretching of the sclerotic at the posterior pole will also cause tension of the internal tunics, hence diminished visual acuity. This tension may, however, be also due to deficiency of the circular portion of the ciliary muscle. In this case, the longitudinal fibers will cause tension during accommodation. According to G. SEGGEL (*Münch. med. Woch.*, May 2, 1905) all three defects (absence of elastic fibers, thin sclerotic, deficiency of circular muscle fibers) are congenital and inherited, and all three, or the first and second, are responsible for progressive myopia. Proper glasses will not prevent, but may inhibit, the process.

Importance of Lumbar Puncture in Ear Complications.—Before the popularization of lumbar punctures, there has often been considerable doubt in the minds of ear specialists whether in the presence of certain symptoms an operation was indicated or whether a meningitis was already present. C. GRÜNERT (*Münch. med. Woch.*, June 20, 1905) states that it is the duty of all ear specialists to familiarize themselves perfectly with the simple technic of withdrawing lumbar fluid. A clear fluid, evacuated drop by drop, will argue directly against a meningitis and may urgently demand an operation since the symptoms may be due to a brain abscess or other circumscribed suppuration, and the patient may thus be saved. On the other hand, a turbidity, even if very slight, almost always means the death warrant for the patient; since, however, a few cases have been known to recover, it is always best to identify the bacteria present. Streptococci and tubercule bacilli are always more serious than pneumococci. Since the bacteria often stain poorly in the fluid, it is best to employ the dyes for at least half an hour. Occasionally it may be necessary to resort to culture methods or to inject animals. The only bad after-effects ever observed are due to hemorrhage and to the sudden fall of intracerebray pressure. As a rule they are not severe and rapidly disappear.

Traumatic Lesions of the Eye.—F. W. MILLER (*Journal A. M. A.*, Aug. 5) remarks on the various possible traumatic injuries of the eye and their causes, and the necessary classification into recent and old cases, according to whether they are seen before or after the exudates of plastic lymph during the first few hours. The chief danger in these cases, he states, is infection, though hemorrhage is often troublesome and may be very destructive. In non-penetrating and recent cases only can an expectant attitude be assumed. Every penetrating wound must be considered as probably infected and treated as such, so far as possible. The vigorous measures used in general surgery are unfortunately not all applicable to the delicate structures of the eye. Miller speaks very highly of the subconjunctival use of cyanide of mercury, according to Darier's suggestion, in these cases. It should be used early, and not merely as a last resort. Another remedy which he considers exceedingly valuable is dionin, not only for its analgesic properties, but also for its ability to clear up exudates and opacities. Individual treatment and conservatism are necessary as a rule. The question of enucleation arises in severe injuries, and great care and judgment should be used in its decision, especially in case of children whose orbital development may be affected. In case of burns, special effort should be made to prevent disastrous cicatrices and adhesions. In all doubtful cases consultations are desirable and prognosis must always be most guarded.

PRESCRIPTION HINTS.

Non-Operative Treatment of Nevus.— NEUMANN (*Deutsche med. Woch.*, No. 20, 1905) uses an emulsion of pure and dried chloride of zinc (5 to 10 per cent.) in elastic collodion. This is painted with a camel's-hair brush over the nevus, the surrounding skin being protected by strapping. When the collodion is dry, a bandage is applied, which remains on for eight days. The scab is then found to be shed. Any remains of the nevus are covered with gauze, on which has been spread the following ointment:

R Acidi Arsenici, Sulphur depur aa 3i
Ung. cerae 3iii

This is kept on for three days and the necrosed tissues scraped away with a sharp spoon. This is repeated until the nevus has disappeared.

Nervous and Reflex Vomiting.—

R Bismuthi subnit. 3i
Cerii Oxalat. 3ss
Glycerit ac. carbol. (1-4) mxx
Ips. chloroformi, Tinct. cardamom. comp. aa f 3i ss
Aquae menthae pip. f 3iv
Aquae calcis q. s. ad f 3ii

M. Sig. Teaspoonful in a tablespoonful of water every hour till relieved. (Reed.)

Acute Otitis Media.—

R Stovaine gr. iii
Resorcin gr. ii
Glycerin 3ii

M. et Sig. Pour seven or eight drops into the ear every two hours. (G. Laurens.)

THE MEDICAL NEWS.

A WEEKLY JOURNAL

OF MEDICAL SCIENCE.

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THE STUDENT LIFE.

To stand upon a mountain above the plain of life and to see one's possessions narrow toward the vanishing point of human perspective makes a philosopher of the meanest of us. And the more often we mount above our daily level the more clearly do we see our relations to our fellow men and theirs to each other. The man who knows these sensations of clear vision and secure wisdom which sweep over him when he sees the world of river and plain as it really lies, will perceive an analogous pleasure in standing for a moment with Dr. Osler as he takes a last look at his once familiar surroundings in Canada and the United States.

In reading his farewell address to Canadian and American medical students, printed in this issue of the MEDICAL NEWS, we feel a thrill of comprehension as he points out one by one the various kinds of lives that lie before the medical profession, and outlines the possibilities of extending the boundaries of one's narrow lot by study. What has already been done lies clearly mapped out at our feet, and as he points to the type of student that has blazed the path and laid the first foundations in the crude soil, we are tempted to think that there is no undiscovered country for the genius to open up. But so familiar is he with the mountain-top, so keenly observant of the march of affairs, that when he indicates in what direction the newest developments lie we are eager to follow his guidance.

It is to the country practitioner that Dr. Osler draws attention. The small town and the country-side has sent its best men to the city, hoping often in vain for their return. And when they have come back their enthusiasm has not been able to stand the strain of the years of waiting. With the student habits which he advises, with the books and laboratories which it is possible to possess even with a limited income, and with the fervent spirit of inquiring, studying and testing every case that comes along, the young practitioners in small towns and country places could, in the course of a generation, change the whole face of medicine in the country.

THE ETIOLOGY OF YELLOW FEVER.

THE recent publication of a "preliminary report on cells found in yellow fever blood, with reference to their etiologic and diagnostic significance," by Drs. Pothier, Hume, Watson and Couret, of New Orleans (*Journ. Am. Med. Assoc.*, Sept. 23, 1905), calls for more than passing comment in view particularly of the wide publicity accorded the report by the activities of the Associated Press.

The belief that the cause of yellow fever has definitely been hunted to the ground, fostered by the specific assertions of the press notices, rests as yet on very insecure foundations.

In the report alluded to the authors state that a careful study of the blood of patients with yellow fever shows certain cells, heretofore undescribed, which undergo developmental changes and which can further be demonstrated in the stomach of a recently infected *Stegomyia*. These parasites are described as extracellular, groups in twos or more, approaching in size from twice the diameter of a pneumococcus to one-fourth the diameter of a red blood cell. They are ovoidal or spherical in shape and are composed of a highly neutrophile granular protoplasm with one or more chromatin staining nuclear masses. A capsule is observed particularly in what are assumed to be older forms. The authors describe four types varying in some minor technical details as to shape, size and staining qualities.

Since the classical filtration experiments of Reed and Carroll (*Am. Med.*, Feb. 22, 1902)

there is little escape from the conviction that the blood in yellow fever contains an infectious parasite which can pass through a Berkefeld filter capable of holding back the minute *Staphylococcus aureus.* This does not à priorily negative our present findings, however, since it may be possible that the newly described organisms may in some stages of their growth be sufficiently small to pass through. Certainly the comparatively large organism described could not pass through the filter test as devised by Reed and Carroll.

It may be recalled that in the report of Working Party Number 1 of the Yellow Fever Institute, Drs. Pothier, Parker and Beyer (Yellow Fever Institute *Bulletin* No. 13, March, 1903) claimed to have found a minute body, which they termed the *Myxococcidium stegomyiæ,* and which was held by them to stand in etiological relationship to the disease, having been found in the blood and in the stomach of the *Stegomyia.* We cannot escape the conviction that the present discovery is a rehabilitation of the claims of one of the members of this working party at least, although this preliminary report does not make any specific mention of the *Myxococcidium.* The description of the organisms is very similar, however.

The claims regarding the *Myxococcidium* have been fairly well sifted and found wanting, both by Working Party Number 2 and by the French Commission headed by Marchoux (*Bulletin* 14, Yellow Fever Institute, 1905, and *Ann. de L'Inst. Pasteur,* Nov., 1903). Both of these groups of investigators found the bodies described, but they were practically unanimous in showing that so far as the organism in the mosquito body was concerned the *Myxococcidium* was probably a commensal yeast, the *Saccharomyces apiculatus,* a very common growth in many mosquitoes. Further, if Schaudinn's suggestion is correct (*Arb. a. d. k. Gesundheitsamte,* 1904), that the inflammation of mosquito bite is largely due to the development of these same yeasts in the human skin it is not impossible that the *Saccharomyces apiculatus* may be the organism recently described as the etiological factor. Certainly the description as recorded by Drs. Pothier, Hume, Watson and Couret are remarkably like those of certain forms of wild yeast.

When the further evidence is borne in mind that scores of investigators have studied the blood smears by modern technical methods, it does not seem probable that so potent an organism as the one described would have slipped by unnoted. We prefer to reserve our judgment and wait for confirmation of the recent findings.

"TIT TAT TO."

California is certainly one of the most prolific states in the Union. Exuberant in her growths and redundant in her productions it is hardly to be wondered at that lavish nature should at times overstep the bounds of conventional habit and become forgetful of her accustomed limitations.

This is all the more natural when we remember that even in the effete East she is at times guilty of a playful hyperplasia that is evinced by the production of the race of double-toed cats which is indigenous to the stern and rock-bound coast of New England, while the appearance of an occasional and superfluously extra finger on the infantile hand of the far North is an event that demands little more than the registration of the fact in the local news of the country paper.

Remembering these facts, therefore, we are not surprised by the announcement in the columns of the *Oakland Clarion* that Miss Isabelle Lefevre, of 661 Madison Street, Oakland, Cal., is the proud and undisputed possessor of three tonsils. Whether she was born with them, whether she achieved them, or whether they were thrust on her, the report does not state. As three of a kind, however, are better than a pair, particularly in California, the late Mr. Jack Hamlin, or Mr. John Oakhurst, would probably claim that she obtained them in the "draw." The fact, however, remains, according to the story of our esteemed lay contemporary, that Miss Lefevre has reached the age of fifteen years and that she not only still holds them, but that their possession has caused her to become a "stand-patter" of the most uncompromising type.

The indictment against Miss Isabelle, which is brief, is as follows: "Miss Lefevre has three tonsils; she stays out nights with undesirable companions. She is wayward in practice and will not go to school." As to the number of tonsils, we are, as we say, with certain reservations, willing to accept it, but we do not quite see the connection between the third tonsil and the habit of nocturnal ramblings with undesirable companions, nor do we know what the standard of desirability of "gentlemen friends" for girls

of fifteen years to "stay out nights" with is. Whether the good people of this California resort gauge it by age, sex or previous condition does not appear in the report, and there is no mention of the time at which Miss Lefevre was accustomed to return. It seems evident, however, that curfew does not ring at Oakland.

As to the third and last count, that she is wayward in practice and will not go to school, the charge is luckily more explicit, for were it not for this it might have been easily imagined that she was merely a truant bird who thought her home a cage, while it is in the evidence that Judge Hall had, because of her behavior, seen fit to put her under the care of the probation officer. Meanwhile Miss Helen Swett, one of the vice-presidents of the Associated Charities, imbued with the idea that practice might prove more efficacious than preaching, took the girl to one Dr. Louise M. Tenny, who found that "she was suffering from an adenoid growth or third tonsil at the upper end of the pharyngeal cavity behind the palate." This the good doctor has "watched most carefully," and is now convinced that the patient's waywardness is due to the abnormal growth in the throat. For, it is explained, "the third tonsil hinders the flow of blood to the brain. In this view starvation of the brain affects moral responsibility, and the observance of the Ten Commandments depends in large measure on this physical condition."

And it is right here that we draw the line. We can readily understand that a girl who is wayward in practice and who has a penchant for "staying out nights" with questionable companions might easily break one of the Ten Commandments. Nay, we will go even farther, and if Dr. Tenny is such an insatiate archer that one would not suffice, we must admit for the sake of argument that she might knock the corners off of even another, but that the adenoid would cause a total disregard for the observance of the entire *ten* seems to us to be stretching the matter of tonsils a little too far.

As, however, Dr. Tenny seems possessed of some of the earmarks of an authority on the subject, it may be that the tonsil of the West differs in magnitude from the tonsil of the East. All flesh is not the same flesh, and the glory of the California adenoid may be terrestrial and sown in corruption. For Dr. Tenny explains that its removal almost invariably has an extraordinary influence on the mentality and morals of those on whom the operation is made. Children with vicious, wayward tendencies, on recovering from it, frequently show an entirely different and much improved disposition. "The reason for this," she thinks, "is more physiological than psychological. It removes a drain on the vitality; it eases and destroys what has always been a source of irritation. The brain, as well as the whole system, is, of course, better nourished as a result of the removal of the abnormal growth."

All this seems reasonable when applied to a large tumor, or to one that is exerting pressure, but that an extra tonsil in the pharynx will give rise to reflex action in the brain sufficient to cause a patient to run amuck with the whole series of the Commandments seems to be of the nature of a very tall oak grown from a very little acorn. Then, too, it is most easy to understand that any child of fifteen years would much prefer to take her doll clothes and "play" with companions of her own age, no matter how objectionable, than to be either mothered by the "probation officer" or fathered by Miss Swett or the Associated Charities. There is no evidence of total depravity in this, so that, taking one consideration with another, remembering the ordinary symptoms of adenoid trouble, and bearing in mind the enormities that this girl is charged with, we feel that we must look deeper for some more plausible etiology.

Far be it from us to question the professional acumen of a sister practitioner, or to cast aspersions on her diagnostic ability. But in view of the peculiar manifestations of this case, the indifference to the Mosaic law and the propensity to "stay out nights," is it not possible that when the case was presented to Dr. Tenny, that the gentle Louise touched the harp lightly on the absence of some inward spiritual grace, while she bore, with an all too heavy hand, on the outward visible sign of the three little tonsils "all in a row?"

ECHOES AND NEWS.

NEW YORK.

The Herter Lectures.—The Herter Lectures, established by Dr. C. A. Herter at the New York University and Bellevue Hospital Medical College, will be given this year by Prof. Carl von Noorden, Chief of the City Hospital of Frankfort-a. M., Germany. His subject will be Diabetes. The lectures, six in number, will be given in English in the large auditorium of the Carnegie Laboratory, 338 East Twenty-sixth Street, from Monday, October 9, to Saturday, October 14, inclusive, at 4 o'clock in the

afternoon. Visitors are welcome to these lectures. Reserved seats to be had on application to the college.

Convention of Homeopathic Medical Society.—The twenty-ninth semi-annual convention of the Homeopathic Medical Society of the State of New York opened at Syracuse, September 26, with a large attendance. A special committee made a report which favored action against "scare" advertisements, inducing persons to believe they suffer from disease, many of which the committee regarded as immoral. The matter of health qualifications for marriage was not taken up, Secretary H. Worthington Page, of New York, stating that it was impossible to get desirable legislation to the end sought, and nothing would be done.

A Weather Guessing Contest.—T. R. Fast, a lawyer, of this city, writes: "As an amateur farmer I am interested in the weather. I have gathered meteorological data for years, but as yet have not found the slightest basis on which to ascertain the state of the weather even twelve hours ahead. The Government weather predictions are very faulty; and as many laymen claim they can predict the weather more accurately than the weather bureau, without any of the elaborate apparatus of the Government, I hereby appeal to all the weather prophets of this country to enter a thirty-day contest for a cash prize of $100, which I will give to whoever predicts the weather most accurately, and will tell for the benefit of the public by what methods he arrived at his conclusions.

Society of Sanitary Prophylaxis.—The program of the October meeting of the Society of Sanitary and Moral Prophylaxis will be as follows: (1) Should the youth of the country be educated in a knowledge of sexual physiology and hygiene? (2) What should be the nature and scope of this education? (3) At what age should this instruction be given, and should it be progressive according to the age of the individual? (4) Through what agencies should this instruction be given—through parents, physicians or teachers? Should our educational centers—high schools, colleges and universities—be utilized for this purpose? (5) Should the teaching of sexual physiology be incorporated in our textbooks of elementary hygiene? As the educational feature of the society's work is an important one, the Executive Committee would be glad to have a general expression of opinion from the medical profession as to the availability and practical value of this proposed education. Physicians who have given serious thought to the subject are invited to send to the Secretary their views upon any or all of the questions submitted for discussion. Such communications will be analyzed and tabulated and form the subject of a report by the Committee on Education.

Harvey Society.—This new society for the diffusion of the knowledge of the medical sciences offers the following as its first course of lectures for 1905-1906, which are to be given under the patronage of the New York Academy of Medicine: Oct. 7, Prof. Hans Meyer, "Die Theorie der Narcose" (in German); Oct. 14, Prof. Carl von Noorden, "Modern Problems of Metabolism;" Nov. 4, Prof. F. G. Novy, "Trypanosomes;" Nov. 18, Dr. P. A. Levene, "Autolysis;" Jan. 20, Prof. W. H. Park, "A Critical Study of Serum Therapy;" Jan. 27, Prof. Lewellys F. Barker, "The Neurones;" Feb. 2, Prof. F. S. Lee, "Fatigue;" Feb. 9, Prof. L. B. Mendel, "The Formation of Uric Acid;" Feb. 16, Prof. T. H. Morgan, "The Extent and Limitations of the Power to Regenerate in Man and Other Vertebrates;" Feb. 23, Prof. Charles S. Minot, "On the Nature and Cause of Old Age;" March 2, Prof. J. C. Webster, "Modern Views Regarding Placentation;" March 9, Prof. Theobald Smith, "Some Phases of Tuberculosis;" March 16, Prof. W. H. Howell, "The Cause of the Heart-beat." The lectures will be held in the Academy of Medicine at half-past eight on the above Saturday evenings during the winter. In the Sorbonne at Paris courses of lectures by distinguished Frenchmen and men of other lands are given with the object of bringing science before those engaged in practice and art of various pursuits. The aim of the Harvey Society is similar in character. The Harvey Society invites all interested to attend this course. Dr. Graham Lusk is the President of the new society.

Conference of Sanitary Officers of the State of New York.—The fifth annual conference will be held in the Capitol at Albany, October 4 and 5, 1905. The following program has been arranged: Opening session, Wednesday, October 4, address of welcome by Hon. F. W. Higgins, Governor of the State of New York; address by Dr. Eugene H. Porter, State Commissioner of Health; address by Hon. Julius M. Mayer, Attorney General of the State of New York.

Evening session, October 4. "State Assistance in the Local and Institutional Control of Contagious Diseases," by Dr. F. F. Westbrook, Director Laboratory, State Board of Health, Minneapolis, Minn., President American Public Health Association. "Pathology of Diphtheria" (illustrated with lantern slides), by Dr. Richard M. Pearce, Director Bender Hygienic Laboratory, Albany, N. Y. Discussion.

October 5, morning session. "Statistical Studies of Pneumonia and Typhoid Fever," by Dr. John S. Fulton, Secretary, State Board of Health of Maryland, Baltimore, Md. "Status of Pneumonia and Cerebrospinal Meningitis as Contagious Diseases," by Dr. William H. Park, Director Bacteriological Laboratory, Department of Health, New York City. "Some Isolated Outbreaks of Cerebrospinal Meningitis in New York State," by H. D. Pease, Director of Antitoxin Laboratory, State Department of Health, Albany, N. Y. Discussion opened by Daniel Lewis, M.D. In the afternoon of October 5, at one o'clock, the guests and members of the conference will take a special train at the Union Station and proceed direct to the new sewage disposal plant of the village of Saratoga Springs, as guests of the State Department of Health. "The Pollution of Streams and the Natural Agencies of Purification" (illustrated), by Mr. George C. Whipple, New York City. "The Purification of Public Water Supplies" (illustrated), by Mr. Robert Spurr Weston, Boston, Mass. "Water Resources of this State Available for Potable Water Supplies," by Prof. O. H. Landreth, Consulting Engineer, State Department of Health. "Description of Methods for the Collection of Samples of Water for Chemical and for Bacteriological Analysis," by Dr. Willis G. Tucker and Dr. R. M. Pearce.

PHILADELPHIA.

Medical Ethics.—At a stated meeting of the Philadelphia County Medical Society, held June 21, 1905, a resolution was adopted conveying a request that all medical schools furnish their senior class with a special course of lectures or addresses upon the subjects of Medical Ethics and the Business Aspect of

the Practice of Medicine, and including the recommendation that graduates promptly join the local County Medical Society.

To Take Charge of the Research Work at Wistar Institute.—During the months of January, February and March Dr. Henry H. Donaldson, professor of neurology at the University of Chicago, will have charge and will conduct the entire work at the Wistar Institute. The appointment of Dr. Donaldson was made upon the recommendation of the Advisory Board, which is composed of some of the most eminent anatomists of this country.

Debarred From the Use of the Mail.—The postoffice authorities at Washington, D. C., have instructed Postmaster McMichael to prevent certain "drug and remedy" companies from using the mail. The order is based upon the results of the investigation of the postal inspectors, who have determined that the business of these so-called "drug and remedy" companies is of an illegitimate and fraudulent nature. S. Regan, of 217 Drexel Avenue, Atlantic City, is denied the same privilege.

Meeting of the Pathological Society of Philadelphia.—The Pathological Society of Philadelphia held its regular meeting Thursday evening, September 28, where the scientific program was offered by Dr. B. Nisbit, who showed sections from the washings of the stomach. Dr. A. J. Smith reported a case of Multiple Tumors. Dr. A. Stengel exhibited (1) specimens of cirrhosis of the liver, (2) "Chronic Fibrous Myocarditis." Dr. C. Y. White presented card specimens. The nominations for officers for the ensuing year were made.

Hospital Receives State Charter.—The Roosevelt Hospital, a new institution in the northeastern section of the city has received a charter from the State. The Roosevelt was established in 1894 by Dr. Franklin Brady as a private concern at 1833 Chestnut Street, but finally charitable patients were admitted, the demands of which became so great that the above step was thought necessary. Temporary quarters have now been established at 1815 Frankford Avenue, but recently a new site has been acquired, where a modern building will be erected.

Work at the Maternity Hospital.—At a recent meeting of the Board of Directors of the Maternity Hospital the reports of this institution showed that in the three months ending August 31, 1905, 182 patients, including 19 remaining from May, were cared for in the hospital proper; 25 infants were born in the obstetric service, necessitating 152 visits from physicians; 447 patients visited the various clinics, and 417 prescriptions were compounded. These reports are very satisfactory to the board, and they believe the work can constantly and gradually be extended.

Convention of Homeopathists.—Last week saw the beginning and the end of the forty-second annual meeting of the Homeopathic Medical Society of Pennsylvania. One of the papers that commanded considerable attention was that of Dr. E. R. Gregg, who read of the "Scopolamine-Morphine Combination as a General Anesthetic." He treated 28 patients of all ages in the Pittsburg Homeopathic Hospital by this method. A paper on the "Present Status of the Consumptive" was read by Dr. F. W. Boyer, of Pottsville. Dr. C. O. W. Bartine, of Philadelphia, read a paper on "Milk as a Factor in the Causation and Spread of Infectious Diseases." Another paper which commanded a great deal of attention was read by Dr. J. D. Boileau, of Philadelphia, upon "Cause and Prevention of Yellow Fever." He took the ground that the mosquito was alone responsible for the spread of the disease. Dr. August Korndörfer, of Philadelphia, read an interesting paper on the "Work and Life of Hahnemann."

Report of the County Medical Committee.—At the regular meeting of the Philadelphia County Medical Society the committee composed of Drs. Francis M. Perkins, Charles W. Burr and Henry W. Cattell, and named at the meeting of the society April 20, 1905, for the purpose of acting in conjunction with the Coroner, the Director of Public Safety and with the District Attorney in securing evidence against and in prosecuting individuals guilty of performing criminal abortions, have handed in the following report: "Your committee begs leave to report that it has investigated over thirty persons making a practice of performing criminal abortions in the city of Philadelphia, and that at the present time each one of these has either left the city, is under police surveillance (6), is a fugitive from justice (7), is awaiting trial (7), or is in prison serving time (8). Your committee in its entirety or individually has paid frequent visits to Coroner Dugan, District Attorney Bell, Director Smyth, and Director Potter, and have been most courteously received by these gentlemen, and believe the support of the society in assisting them in the performance of their duties has been much appreciated. As an additional example of what has been done may be cited the case of one of the Philadelphia newspapers which formerly carried in its Sunday edition ten to seventeen advertisements of criminal abortionists, and which now no longer prints the objectionable kind of matter. So much having been accomplished, it is hoped that the County Medical Society will never permit this nefarious business again to assume such vast proportions in Philadelphia as was the case in the early part of 1904. It would seem to the committee that the only way to prevent this now that the city is largely freed from criminal abortionists, is to have the matter taken up by the State Medical Society and the American Medical Association, so that when the abortionists are driven from one city they will not immediately go to another place and carry on work of a similar nature. Thus several years ago an earnest endeavor was made to drive this class of persons out of Boston, and as a result Philadelphia received several of the worst specimens with which the authorities have had to deal. Then, too, it is so easy to live in New York or New Jersey and to come over to Philadelphia a certain number of days each week. If a central committee of the American Medical Association could be established with affiliating committees in the various large centers, your committee believes in the various large centers, accomplished thereby."

Brain and Arm Bequeathed to Wistar Institute.—General Wistar, who recently died at Claymont, Del., left the following will: "I, Isaac J. Wistar, of Philadelphia, widower, do make and publish my last will in manner following, to wit: I bequeath to the Wistar Institute of Anatomy and Biology my right arm, said to be a desirable specimen of gunshot anchylosis, and also my brain, both to be removed by said institute promptly after my death, and I direct my executor, before performing any other act of administration, to cause the remainder of my body to be cremated with all convenient dis-

patch, without ostentation or unnecessary expense, and to deposit the ashes thereof in an urn or other small vessel of inexpensive character, to be marked and sealed up in the mural crypt or recess prepared for that purpose in the main hall of the said Wistar Institute's museum building. The details of these dispositions may, if my executor so choose, be entrusted to my friends, the director and assistant director of the said institute, who know my wishes and will not refuse me that last service. I give and devise to the said Wistar Institute, and request it to preserve and maintain it in such plain and reasonable good order as it now is, my lot in Laurel Hill Cemetery, known as section 4, No. 114, which I inherited from my father, in which my deceased wife is interred, and in which my brother Thomas, but no other person, is to have the right of burial. Also my original share in the Library Company of Philadelphia, with the framed certificate authenticating the payment for any registry thereof, over the signature of B. Franklin, which descended to me from my great-grandfather, Richard Wistar, an original subscriber. Also the dress sword presented to me by the citizens of Philadelphia, with the correspondence relating thereto, my general officer's service sword worn by me in many celebrated engagements; my colonel's service sword worn at Ball's Bluff, Antietam and other actions, the scabbard of which was lost when I was wounded at the latter place; my epaulettes and all weapons, flags and trophies of war used or captured by me in the Civil War; my several military and other commissions from the State of Pennsylvania and the United States; the portrait of myself, all my books, my military, official, personal and other manuscripts, correspondence, orders and papers. All my clocks, oil portrait of my mother, all the movable furniture of my library and such other pieces of my household furniture as I may hereafter designate, or as the said Wistar Institute shall desire to have for permanent use in its buildings, all my pictures, photographs and engravings, and my personal recollections in two bound volumes of manuscripts, which, however, shall not be published, if at all, until at least five years after my death. After the payments of all the said several legacies, and of the taxes, repairs, insurance, maintenance and restoration, and all other necessary and lawful charges and expense that may be required for the protection and maintenance of my estate, I direct that all the rest, residue and remainder of my estate shall be transferred and paid over to the person, natural or corporate, who shall then be the trustee, lawfully holding the trust estate which was granted and settled by me for the perpetual use and benefit of the Wistar Institute of Anatomy and Biology, a charitable corporation of the State of Pennsylvania, which trustee is at the present time the Girard Trust Company, of Philadelphia, to be held upon the trusts and for the uses and subject to the terms, conditions, stipulations and limitations which are in the deed or declaration of trust, and shall thereafter be and constitute an inseparable part of the said trust estate for the sole and perpetual use and benefit of the said The Wistar Institute of Anatomy and Biology, as is in and by the said deed declared and limited to all the provisions, stipulations, conditions, limitations and remainders which are in and by the said deed settled, limited and declared. It is my intention that all the devises, bequests, legacies, annuities and benefits conferred by this my will, are given to the said several beneficiaries on the express condition that no such beneficiary shall directly or indirectly dispute or contend concerning any clause or direction of my will, and in case of any contention or litigation I direct that the bequest, devise or legacy, and every other right or claim to any part of my estate of the beneficiary or of any other person so contending, disputing or litigating shall forthwith lapse, and become part of my residuary estate, to be disposed of as I have provided, or may provide, concerning such estate. And I hereby declare that I have no intention of dying intestate as respects any portion of my estate, and if any of the directions or disposition of this my will shall be declared invalid by any competent tribunal, in whole or in part, then the result thereof, so far as any change or modification may be thereby caused, shall inure to the advantage of the Wistar Institute of Anatomy and Biology, as the ultimate beneficiary, as herein provided and intended."

CHICAGO.

Contagious Diseases.—Except for a continued spread of diphtheria in South Chicago, the contagious diseases are steadily declining. No death from measles or scarlet fever occurred during the week, and there were marked reductions in the deaths from typhoid fever and whooping-cough.

Resignation of Dr. George F. Butler.—Dr. George F. Butler, author of Butler's Materia Medica and Therapeutics, has resigned from the College of Physicians and Surgeons, Chicago, where for nearly twelve years he held the Chair of Materia Medica, Therapeutics and Clinical Medicine.

Dedication of Hinsdale Sanitarium.—This sanitarium was dedicated September 20. The Hon. R. A. Childs, of Hinsdale, Ill., presided, and the dedicatory address, entitled "The Sanitarium Idea," was delivered by Dr. J. H. Kellogg, head of the Battle Creek Sanitarium. Other addresses were given by Judge Orrin N. Carter, Mr. Hastings H. Hart, and Dr. Homer M. Thomas.

CANADA.

The Army Medical Corps.—The permanent army medical corps of Canada is to consist of 150, all ranks. Nine will be stationed at London, ten at Toronto, eleven at Kingston, nine at Montreal, nine at Fredericton, twenty at Halifax and ten at Winnipeg. The remainder will be located in the west at places not yet stated.

Winnipeg General Hospital.—During the month of August, 1905, 613 patients were treated in the Winnipeg General Hospital, as against 512 in the same month in the previous year. The number of patients treated from January 1 to August 31, 1905, was 2,904, as against 2,412 for August in 1904. The outpatients treated in August were 395, as against 292 for August of the previous year.

Dr. R. A. Reeve, Toronto, Elected President of the British Medical Association.—On September 10 the physicians of Toronto had a meeting in the Ontario Medical Library to discuss the arrangements for holding the annual meeting of the British Medical Association in Toronto in 1906. A special committee was appointed to select another committee to advise with the local branch of the British Medical Association in Toronto as to the arrangements. Following this the local branch of the Association held a meeting. Dr. I. H. Cameron occupied the chair, and Dr. W. B. Thistle, the secretary

of the local branch, acted in that capacity. Dr. R. A. Reeve, Dean of the Medical Faculty of Toronto University, was unanimously elected President, and it was decided to have the meeting divide into twelve sections, the chairmen and secretaries of each being selected. It was also decided to have the meeting take place during the week preceding the Canadian National Exhibition, so that it may be expected to be held in the third week in August. A committee of arrangements will be appointed in the near future.

Montreal General Hospital.—During the week ending September 23 the regular quarterly meeting of the Montreal General Hospital was held in that city. Dr. Craik, formerly Dean of the Medical Faculty of McGill University, gave some interesting items regarding the growth of the institution. He stated that in 1854, fifty-one years ago, he was a house surgeon in the Montreal General Hospital, as was Dr. Ault, who was also present at the meeting. At that time there was a staff of eight or ten nurses, and the patients numbered between eighty and ninety in the year. He also gave an interesting account of the epidemic of Asiatic cholera in Montreal in 1854. During the quarter ending June 30, 1905, there had been treated to a conclusion in the wards no less than 803 patients. There had been in that quarter 55 deaths, 28 of which occurred within three days of their admission, giving a mortality rate of 3.34 per cent. In the out-door department there were 10,850 consultations, as compared with 9,072 for the corresponding quarter in 1904. The income for the quarter had been $18,975 and the expenditure $23,858. Dr. R. P. Campbell was appointed medical superintendent for another year. Owing to the increase in work in the out-door department it has been found necessary to make an addition to the staff as follows: Out-patient physicians, Drs. A. W. Gordon, B. W. D. Gillies and A. C. P. Howard; out-patient surgeons, Drs. E. M. von Eberts, A. T. Bazin, A. R. Pennoyer, C. A. Peters. The governors are asking wealthy citizens to donate funds to the extent of $500,000 for an endowment.

The Management of the Ontario Provincial Hospital.—For the first time in the history of the province of Ontario the medical superintendents of the various provincial hospitals for the insane gathered in convention in the city of Toronto. This took place September 20, and was summoned at the call of the Hon. the Provincial Secretary, under whose department lies the administration of these institutions. It is the first of what will hereafter be a series of meetings on the part of those engaged in this department of medicine. Dr. G. A. MacCallum, Superintendent of the London Provincial Hospital, was chairman of the conference, while Dr. Beemer, the superintendent of the Mimico Provincial Hospital, discharged the duties of secretary. Dr. W. N. Barnhardt, of Toronto, contributed a paper, in which he advocated pathological work in these institutions, stating that we in Ontario were about ten years behind similar institutions in the United States. He thought that excellent work might be done by the present staff if they were relieved of some of their non-medical duties. In the discussion that followed this paper the general opinion was that there was lots of room for improvement in this direction. Dr. D. Campbell Meyers, Toronto, contributed a paper dealing with the prevention of insanity, and held that the first step in prevention was for the providing of better facilities for instruction of a clinical character for the medical student in functional nervous diseases. Having this end in view, he advocated the establishment of wards or separate pavilions in connection with the general hospitals of the province for the treatment of the early acute cases of insanity. Following the reading of this paper, the chairman of the Board of Trustees of the Toronto General Hospital, stated that the Toronto General Hospital was prepared to undertake this class of work and would provide for the residence of the former superintendent, Dr. Charles O'Reilly, being used for this very purpose. The plan advocated by Dr. Meyers was endorsed by the meeting. There was a long discussion on the question: "Under what conditions should the insane be committed to jails?" Satisfaction was expressed that there are now fewer insane in jails in Ontario than formerly, but there yet remained room for considerable improvement, particularly with regard to the committment of lunatics to jail by warrant. A resolution was adopted recommending that the system of committing lunatics to jails by warrant be simplified, and that magistrates be instructed against committing alleged insane persons to jail when application for the admsision of sane to the asylums has not been made.

GENERAL.

Quarantine at Annapolis.—On account of the prevalence of typhoid fever and diphtheria at the Naval Academy, a rigid quarantine has been established. No midshipmen are allowed to leave the grounds.

National Purity Conference.—The National Purity Conference will be held at La Crosse, Wis., October 17 to 19. Delegates will be present from all of the United States and Canada. The purpose of the conference is to consider and discuss rescue work, law enforcement, divorce, race suicide and State toleration of the social evil.

New Orleans Fever Report.—With September practically gone, the yellow fever situation is under control in New Orleans, and as the days grow cooler the number of mosquitoes is expected to decrease. There is a steady inpour of people from all sections of the country. The most favorable feature of the report for the last twenty-four hours is the small number of persons now under treatment here. They number 288, the smallest list since August 8.

Hospital Superintendents' Conference.—A four-days meeting, the seventh annual conference, of the Association of Hospital Superintendents of the United States was opened at the Hotel Vendome, Boston, September 26. Among those who were expected to read papers was Sir Henry C. Burdett, K.C.B., of London, whose subject was to be "The Hospital World." Dr. George H. M. Rowe, of the Boston City Hospital, is president of the association.

Cholera Epidemic Checked.—Ambassador Tower cabled the State Department from Berlin as follows: "It is announced officially by the German Government that the cholera has been checked, and that any epidemic is entirely unlikely." This statement will be communicated by the Department of State to the Public Health and Marine Hospital Service, through the Treasury Department, in order that it may modify, if it sees fit, the restrictions which it has been obliged to impose upon emigration through German ports.

Public Health Association.—Physicians, surgeons and bacteriologists from all parts of the United States and from Canada and Mexico met in Boston last Monday to attend the thirty-third annual meeting of the American Public Health Association, which opened

Monday, September 25, and continued until Friday night. Subjects for discussion touching the preservation of public health have been prepared, covering a wide range. Section meetings were held Monday at the medical library in the Fenway. The convention proper opened its sessions Tuesday, September 26.

Vermont's Senator Donates a Tuberculosis Sanitarium.—Senator Redfield Proctor, of Vermont, in a letter to Dr. W. N. Bryan, of Ludlow, Secretary of the Vermont State Tuberculosis Commission, announces that he will purchase a site and erect a sanitarium at a cost of about $50,000 in this State for treatment in incipient cases of tuberculosis. The building will accommodate from twenty-five to thirty patients. In addition the Senator says he will give $100,000 as endowment for the institution. He suggests that a board representing all sections of the State, headed by the Governor, be selected to have charge of the sanatorium and to provide that if the State at any time wishes to assume the charge and maintenance of the institution it may, in the discretion of the trustees, be turned over to the State with all its property and funds. The site has not been announced, but will be selected soon. The Senator says he makes the gift at the request of his children.

Military Surgeons Meet.—With a gathering of 150 delegates representing the armies or navies of Japan, China, Mexico, Great Britain, the Dominion of Canada, Guatemala, France, and the United States, and the National Guard of many of the States in this country, the fourteenth annual meeting of the Association of Military Surgeons of the United States opened in Detroit, Sept. 26. Reports from officers and committees were read at the morning session. Surgeon-General Walter Wyman of the Marine Hospital Service, president of the association, was unable to be present, and Col. A. M. Briggs, of Buffalo, the vice-president, read his report. The report of the secretary, Major J. E. Pilcher, of Carlisle, Pa., noted an increase of membership from 1,800 to 2,000. A report from the legislation committee indorsed the army bill which provides for increasing the number of medical officers in the army and the establishment of a medical reserve. Major Jefferson Randolph Kean, U. S. A., of Washington, D. C., was announced as the winner of the Seaman prize for 1905. This is a prize of $500 offered for the best essay on "The Prevention of Disease in the Army and the Best Method of Accomplishing that Result."

The Army Canteen.—It is not to be denied, writes the *New York Times*, that the experience of the army canteen furnishes a serious argument against female suffrage. It is quite notorious that it has been by the efforts of the W. C. T. U. that the judgment, the practically unanimous judgment, of the officers of the United States Army with respect to the best means of promoting temperance in the army has been nullified. This year, it appears, once again, has that judgment been expressed, again with practical unanimity, by the reports of all the department commanders. They are the only expert witnesses. And they corroborate one another from their widely different stations and points of view. In any question in which sentiment was not allowed to play a disproportionate part, such a consensus would be conclusive. But it seems that members of Congress allow the sentiment of persons who know nothing about the matter in hand to outweigh the opinions of those who know all about it. There is grave doubt whether, in spite of all this consensus, the most practicable expedient for promoting temperance in the army will be again adopted. Mr. Rudyard Kipling, in the character of a Prince of India, once wrote a fierce satire upon the British legislation which similarly went counter to the facts of the case, as these were certified by the most competent witnesses. The Indian Prince declared that it was the "barren women," meaning the women who had nothing more important to do than to regulate affairs of which they were grossly ignorant, who dictated the legislation of Great Britain. If Secretary Taft has the courage of what must be his convictions on the subject of the army canteen, the subject will again be pressed upon the attention of Congress. It will once more be brought to proof whether the testimony of expert witnesses shall or shall be allowed to weigh against what one must call the combined ignorance and impudence of those who know nothing at all about the matter in question.

International Surgical Society.—At the first Congress of the International Surgical Society, held last week at Brussels, the subject of the treatment of general peritonitis was formally introduced by six "Rapporteurs" from various countries. These were: Dr. P. L. Friedrich (Leipzig), Dr. A. Krögius (Helsingfors), Dr. M. K. G. Lennander (Upsala), Dr. F. Lejers (Paris), Dr. A. J. McCosh (New York) and Dr. E. de Ista (Madrid). On a few points there was more or less difference of opinion as to the best methods of treatment; on others all were agreed as on the value of salt infusions during and after operation. The points in dispute were the questions of (1) Invariable operation (except in moribund cases). Four of the speakers approved of immediate operation in all cases. Two doubted the universality of this rule. (2) Anesthesia. The speakers were about equally divided as to the respective advantages of local and general anesthesia. (3) Incision. A long median incision, with secondary openings, was advocated by two speakers; a moderate by three, and a short single by one. Irrigation in a thorough manner was recommended by two speakers; in a modified manner by two, whereas dry sponging in cleansing was preferred by two. Salt solution was universally advised. All antiseptics discountenanced. Evisceration of intestines was rather discountenanced by all the speakers. Drainage, with extensive packing by means of gauze tampons, was advocated by two speakers. Very scant drainage by two, and two were rather doubtful which plan was most advisable. Also two were in favor of multiple openings for drainage. Entire absence of drainage was opposed by all. Enterostomy. This subject received the fullest discussion. The formation of one or more intestinal fistulæ was warmly advocated by three. The other three were in doubt as to the advisability of this procedure, at least in the great majority of cases. Fowler's position was advocated by three. A general discussion followed the reading of the six papers.

Harvard Medical School.—The Harvard Medical School opens on October 1 this year with certain very marked change in its curriculum. Beginning with the year 1900 the so-called concentration system was adopted; *i.e.*, for the first half of the first year Anatomy and Histology were the only subjects taken up; during the second half students devoted all their time to Physiology and Physiological and Pathological Chemistry; in the first half of the next year Pathology and Bacteriology were studied, while during the second half of the same year a wider variety of subjects was taken up, preparing the student for the clinical work of the last two years. The work of these last two years was practically all prescribed. This year under the new system while the first two years remain the same, the greater part of the prescribed work is put into the third year, and the fourth is purely elective. One thousand hours

is the minimum requirement for each fourth-year student; this time, under certain supervision, he may divide among as large number of electives as he chooses. For the convenience of the students these electives are arranged in groups, a certain group being recommended for the man who intends to go into general practice, and another for those men especially interested in surgery. Men desiring to take up work along special lines, scientific medicine or otherwise, may select their electives with this end in view, providing they include the necessary one thousand hours of work and meet with the approval of the Advisory Board. This change makes the third year, in the past always the hardest, decidedly more so, giving the student fifteen to eighteen examinations in the spring of that year; the success of the fourth year depends much on the intelligence of the student in the selection of his electives; this factor, now that a college degree or its equivalent is required for admission to the school, is not such an altogether doubtful quantity as when the high-school graduate went directly into the study of medicine. The new buildings will be ready for occupation in the spring of 1906. The exterior of all is now practically completed, and the beautiful white marble group is rapidly becoming a sight very worth while going out of one's way to see. It is hoped that a broad boulevard can be made leading from the city directly out to what is to become a great educational center; the building of this avenue is, however, as yet very uncertain.

The Senators Who Smirched a State's Fair Name.—Georgia, writes *Charities*, has again furnished the annual demonstration of the truth that her civilization stands somewhat lower than that of England a century ago. Georgia has once more cast her annual vote against affording any protection whatever to the tiny children in her cotton mills. For another year it will remain legal for little girls five and six years of age to work throughout the night, eleven hours, whenever it may prove profitable to the mills to work night shifts. Year after year Georgia rejects a bill which would, if enacted, prohibit all work in cotton mills to children under the age of ten years. Sir Robert Peel's bill of 1802 is still in advance of public opinion in Georgia. Lord Shaftesbury's bill of 1842 is still too merciful for the people of that State. Compared with Georgia, Alabama (where little girls may work in mills eight hours at night on reaching the thirteenth birthday) is a modern and enlightened State. Compared with Georgia, South Carolina (where children of ten years may work in mills in the summer provided that some time during the year they have attended some school throughout four months) appears well forward in the ranks of the enlightened. Compared with Georgia, Russia (where no child under age of twelve years may be employed in any mill) appears tender in its care of childhood. This action of Georgia is deliberate. It is taken, year after year, at the close of long debates in the Senate. It is by the vote of twenty-three senators that the year 1905 is placed in the black list of years in which Georgia advisedly sacrifices her little boys and girls to the greed of her manufacturers. The list of enemies of the children of Georgia as published in the Atlanta *News* is as follows: Adams, Alsobrook, Bennett, Blalock, Bond, Bunn, Carithers, Copelan, Fitzgerald, Foy, Graybill, Hamby, Hand, Lumsden, McAllister, Odum, Parker, Peyton, Phillips, Rose, Sirmans, Wheatley, Williams. Many northern corporations have branches in Georgia. The writer has seen the splendid, modern equipment of the Merrimac mills, the Massachusetts mills, and the beautiful village of the New York mills at Aragon. Are these northern corporations guiltless of influencing the votes of the twenty-three enemies of the little white children of Georgia? The disfranchised black men of Georgia may well feel a certain satisfaction that it is only the white children who are employed in the cotton mills; and that all these senators are white men. Thinking citizens of this republic, however, must recognize the sinister fact that progress in legislation in all States in which the cotton industry thrives is hampered by the competition of manufacturers in Georgia whose cruel privilege of wearing out and destroying little white children has thus been extended a year by the twenty-three senators of Georgia whose names should be familiar in every home in the nation.

A Medical Estimate of Prayer.—At the recent annual meeting of the British Medical Association a testimony was given to the therapeutic value of prayer which, says *The Outlook*, should be recorded over against the skeptical views of some scientists. Dr. Theodore B. Hyslop, Superintendent of Bethlem Royal Hospital, has a reputation as a specialist in neurology and in the treatment of mental disease which adds weight to his words: "As an alienist and one whose whole life has been concerned with the sufferings of the mind, I would state that of all hygienic measures to counteract disturbed sleep, depressed spirits and all the miserable sequels of a distressed mind, I would undoubtedly give the first place to the simple habit of prayer." It matters not, in Dr. Hyslop's view, what are ones' theological conceptions—anthropomorphic or rationalistic—of the infinite environment with which prayer attempts to commune; the effect is the same: "Let there but be a habit of nightly communion, not as a mendicant or repeater of words more adapted to the tongue of a sage, but as a humble individual who submerges or asserts his individuality as an integral part of a greater whole. Such a habit does more to clean the spirit and strengthen the soul to overcome mere incidental emotionalism than any other therapeutic agent known to me." Mediæval superstition, connecting medical art with magic supposed to be learned from evil spirits, used the proverb, *"Ubi duo medici, tres athei."* In some quarters this stigma is not yet entirely effaced and medical men are perhaps not fully free of responsibility for whatever of it lingers.' On the background of such a history Dr. Hyslop's testimony before an audience of specialists is highly significant of the trend of scientific thought away from materialistic conceptions of mind and of religion. "I believe it," said he, "to be our object, as teachers and physicians, to fight against all those influences which tend to produce either religious intemperance or indifference, and to subscribe, as best we may, to that form of religious belief, so far as we can find it practically embodied or effective, which believes in 'the larger hope,' though it condemns unreservedly the demonstrable superstition and sentimentality which impede its progress." Not many years ago Professor Tyndall's challenge of the religious world to try a prayer-test on a selected number of hospital patients was deemed by many, upon its being declined, to have refuted the claim of a healing power in prayer. As a physicist, Tyndall was, on this subject, not within his own province, as Hyslop, a psychologist, is. Religious men, to be sure, have made extravagant claims, and scientific men also have shot beyond the mark. But Dr. Hyslop's competence to speak in the name of science is unquestionable, and what he affirms as a discovery of medical science is identical with the immemorial faith of religion, that there is a place for prayer in the very nature of things. Not only does he find this place to be foremost among restorative agents. Of the religious enthusiasm which the nature of prayer

is to feed and sustain he affirms that it "embodies the most healthy and preservative development of our social forces." Among the many notable utterances in which science is now evincing herself to be the handmaid of religion, these, the most recent, are as memorable as any.

Atlanta (Ga.) School of Medicine.—This school has just been organized. It will be open on October 3, 1905. Ample accommodations for the coming winter have been secured in the new and elegant Masons' Annuity Building, corner Edgewood Avenue and Ivy Street. Quarters for dissection consist of the first floor of the Masons' Annuity Building. This comprises an office; two lecture rooms, one with a seating capacity of two hundred and the other of one hundred; an operating room with sterilizing and anesthesia rooms adjoining; a private room for professors. A waiting room and adjoining rooms in the basement for the examination and treatment of outdoor patients. A large, well-lighted laboratory equipped with an abundance of chemical apparatus on the third floor; also on the same floor a laboratory for histological, pathological and bacteriological work well stocked with the finest Bausch & Lomb microscopes and other apparatus such as these laboratories need. No medical students in Georgia will be more abundantly supplied with dissecting material. Dissecting will be done outside the building proper, a half block away. Operations on cadavers will be made a special feature of the session's work. Most of the men whose names appear as members of the faculty are already well known to the profession. They have entered into the project with full knowledge of ample financial backing for the future. They have further entered upon the task before them with the specific intention of building up an institution of high grade rather than a necessarily large one. It is intended, just as soon as possible, to qualify for membership in the Association of American Medical Colleges. No College south of Richmond and Louisville belongs to that Association. There has been developing for quite a while a sentiment that there ought to be in the South a medical school whose diploma would entitle one to practise medicine in any part of the United States. Students need therefore have no fear whatever about their certificates, etc., being recognized by other regular medical colleges. This school is not organized to fight any other school. A mistake made by most medical colleges in the South is that they are run to make money. This institution is not run for that purpose Advanced standing of one year will be given students holding degrees from Literary colleges and to graduates in Dentistry and Pharmacy. One or more previous courses in any regular medical college will be recognized and the student advanced accordingly. The first and second years will be devoted to Anatomy, Physiology, Chemistry, Materia Medica and Histology; the third and fourth to such subjects as are usually taught in these years in other medical colleges. The fees for the coming session will be forty dollars whether the student be in the first, second, third or fourth year. No other fees of any kind will be charged, except a graduation fee of twenty-five dollars. As the expense of erecting a building has not been incurred, the expenditures for the coming winter will be small and the tuition can be placed thus at a low figure. Dr. Edward G. Jones particularly desires it to be known that any past promises made to students by him as late Registrar of the Atlanta College of Physicians and Surgeons will be redeemed in the Atlanta School of Medicine. The Proctor, or his representative, will be at the college building, corner Edgewood Avenue and Ivy Street, to matriculate students and look after all other duties in connection with the school. Students are advised to register as soon as they reach the city. Good boarding-houses are abundant near the college. Address all communications to Dr. Geo. H. Noble, Dean, or Dr. Edward G. Jones, Proctor, Atlanta School of Medicine, corner Edgewood Avenue and Ivy Street, Atlanta, Ga.

OBITUARY.

Dr. C. ALFRED GRYMES, formerly a member of the Stock Exchange firm of Henry G. Stebbins & Sons, died of heart disease at his home, 38 Union Square East, New York, last week. Dr. Grymes was a graduate of Harvard University and the College of Physicians and Surgeons in Philadelphia. Dr. Grymes entered his father-in-law's firm after practising medicine four years.

Dr. F. A. BALDWIN died last week at his home, 129 West Seventy-seventh Street, New York. He was born in New York in 1846, and was graduated in 1881 from Bellevue Medical College. He served in the Eastern Dispensary until 1886, and from 1884 until 1895 he was attending surgeon to the outdoor department of Bellevue Hospital. From 1885 to 1889 he was assistant to the late Dr. Alexander B. Mott, who held the chair of clinical surgery in the Medical College. He was a member of the American Medical Association, of the New York Medical Association and of the New York County Medical Society.

CORRESPONDENCE.

A NEW BROOM SWEEPS CLEAN.

To the Editor of the MEDICAL NEWS:

DEAR SIR: Delight in character study is the excuse for presenting what follows; even at the risk arising from the use of an awkward expression for a title, whose like Lord Chesterfield has condemned so much. The search for sterile materials for the surgeon's use leads along a devious path. Thus, sinews from a rat's tail and a heron's legs are some of the latest suggestions. The employment of wire taken from a new broom, as incidentally mentioned in the present instance, is along the same line.

The wife of a financially successful artist, engaged with him in living out that erratic sort of career which society styles Bohemian, related to me sometime since an original method employed by her to restrict the size of her family. Always regular in her menstrual periods, save for the interruptions of pregnancy, the woman, now past forty, possessed of an attractive personality, high spirits and seeming robust health, is the mother of three grown children. After experiencing the pleasure of mothering two children early in her married life and becoming pregnant a third time, a young practitioner suggested to her the error of sacrificing good looks to a numerous progeny. Showing the woman an ordinary uterine sound, the doctor instructed her how it might be used, and explained that while he could not perform such an operation himself, would gladly lend her the implement. Declining to carry out the abortion under such circumstances, the woman's fear was overcome a few weeks later by a sharpened wit. By unwinding she secured the wire which binds the splint bundles to the handle of a broom and with scissors cut out a length of about twenty inches of the bright interior. Doubled at the middle a flexible blunt-pointed implement was secured, of which she had no fear to use, and after some further preparation by scrubbing the wires with soap and water, passed the instrument along her vaginal tract into the uterus with a prompt, uncomplicated re-

suit. Subsequent experiences taught the woman that about the second month was the best time for interrupting her pregnancies, and that a new broom supplied the cleanest wire. During a period spread over twenty-five years of married life this lady has successfully produced by the means described fifteen consecutive, with one exception, abortions. The break in the mortality rate of this auto-operator shows another phase of the woman's character. Controlled by a vivid dream when about making up her mind to commit the depredation, the thought became fixed that the present occupant of her womb would become a daughter, beautiful as herself and with a mind to match. Her hand thus stayed, the birth of a daughter at term fulfilled the first part of the prophesy. The rest is borne out in the individual herself, who now, grown to womanhood, bears a striking likeness to the mother. Her mind will probably never get the stimulation which her mother's has experienced, for she is married to a man many years her senior, and who, possessed of wealth, is controlled by her slightest wish. Those who accept the theory manifest the glib phrase of the Christian Scientists, namely, control of mind over matter will not scoff at the instance which leads one into the occult sciences, just given.

For the unbelievers it may be stated that the woman had nothing but her own whim to control her regarding the number of children she should have. Furthermore, she has not had a similar dream since, but she has had twelve abortions. Regarding acceptance of the truth of the whole story, the woman's eldest daughter was present when he mother gave me her sexual history; she, having been present upon several occasions, was able to corroborate the details. This impressed me not only with the truth of her statements, but of the happy relationship of perfect confidence existing between mother and daughter. This daughter, as well as her brother, it might be remarked, are as commonplace as the younger sister is brilliant. The woman, who is now about in her menopause, viewing a case of spear and dagger-like implements used by the French laity for producing abortion, and collected by me several years ago in Paris, passed them with the comment that "those French women would run any risk."

To set forth the depth and gradual dissemination throughout society of the question of production of children, the following case has but just passed from my notice. A Russian Jewess, the wife of a poor painter of the same nationality, is the mother of nine children, and has been a resident in America some five or six years. Under cocaine anesthesia I operated upon her toe for ingrowing nail. When about to be discharged, after the completion of treatment, the reason for her wish and change, which she effected, from being a patient in a public clinic to a private one, became apparent. Feeling herself to be pregnant, the woman desired to be relieved of the product of conception. Unable to gratify her request, she announced to me "that not for twenty thousand dollars would she bear another child," and left me with fixed determination to find the way to gain her wish.

FREDERICK GRIFFITH

Tested Eyes Before Fight.—Surgeon-General S. Suzuki, of the Imperial Japanese Navy, addressing the convention of military surgeons in session in Detroit, told how the Japanese surgeons before every engagement carefully inspected the eyes of all gunners on the warships. They were all tested with reference to refractive errors in particular.

SOCIETY PROCEEDINGS.

AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS.

Eighteenth Annual Meeting, held Sept. 19, 20 and 21, 1905.

The President, Howard W. Longyear, M.D., of Detroit, Mich., in the Chair.

(Continued from Page 621.)

Indications for Hysterectomy in Puerperal Septicemia.—Dr. Charles Green Cumston, of Boston, stated that hysterectomy applied to the treatment of acute puerperal infection is as yet a mooted question as far as its indications are concerned, and it would be quite as illogical to advise this inference in all serious cases as it would be systematically to condemn it. All surgeons seem to be in accord as to the great difficulty of formulating the indications for this operation, and especially the time when these become formal. To come to a conclusion all clinical methods of examination and those of the laboratory must be employed. The latter, however, are far from being of equal value, as no positive result can be obtained from a bacteriological examination of the lochia or blood. Cytological examination of the blood will give excellent data as far as the prognosis of the type of infection is concerned. Clinically, there is no one valuable sign, but taken altogether the symptoms obtained by careful intrauterine examination may indicate the necessity of surgical intervention when all other therapeutic procedures have failed. Septicemia occurring at once after labor cannot derive benefit from surgery, but, on the other hand, it would appear that hysterectomy is indicated in cases of secondary septicemia with a slow evolution, or those taking on a pyemic type proceeding by successive stages, without visceral metastases, in which case surgical treatment would be a method of exception.

Abdominal Hysterectomy for Multiple Fibroids Complicated by Pregnancy.—Dr. J. Henry Carstens, of Detroit, Mich., reported the case of a woman, forty-two years old, who was never pregnant before. A tumor was noticed for five or six years, but not accompanied by hemorrhage. Menstruation was regular until May; there was a slight show in June and July. He operated in the middle of August. The growth became rapid during the last three months. Patient recovered from the operation for the removal of the tumors.

These cases are not uncommon, still they are sufficiently rare to warrant reporting them. In nearly all cases the women are sterile; the growth develops, and after some years they become pregnant, which makes one suspect that there was some abnormal condition of the uterus, perhaps some malposition which prevented impregnation, but as the result of the growth the uterus was pulled up or shoved over in one direction or another in such a way that the ova could pass into the uterus and pregnancy occur. This seems to him the correct explanation of the occurrence of pregnancy in sterile women after the development of fibroid tumors.

In reference to general rules for these cases, the cases vary so much that no definite rule can be laid down to govern all cases, but on general principles he thinks cases of fibroids complicated by pregnancy can be left alone if they are subperitoneal and located at the upper half of the uterus. Fibroids

located in the lower half of the uterus or in the broad ligament should be removed. Fibroids adherent or complicated with other pelvic diseases should be removed by enucleation, or in some cases an abdominal hysterectomy should be performed.

Personal Experiences in Myofibroma of the Uterus.—Dr. Miles F. Porter, of Fort Wayne, Ind., presented some of the more important facts gained from the treatment and observation of over 125 cases of myofibroma of the uterus. The earlier cases having been seen during a rather exacting general practice, and many of them operated away from home, in private houses, without adequate assistance, accounted for the fact that the records of this part of his work were imperfect. Of the 125 cases, more than 100 were subjected to supravaginal hysterectomy. Two vaginal hysterectomies were done, and in a few cases the tumors were removed per vaginam without opening the peritoneal cavity. No vaginal myomectomies were done in which the abdomen was entered. Myomectomy through the abdomen was done six or eight times only, except cases in which small fibroids were removed during celiotomy for other causes, and these were not considered. Hemorrhage was not so prominent a symptom as was generally thought. In two cases this was the immediate cause of operation, and in one it manifested itself first after establishment of the menopause. Pain, especially during the menstrual period, had been the most common symptom. Only one case of pyosalpinx as a complication was seen. In one an eight and one-quarter-pound tumor was removed from a four and one-half months' pregnant uterus. Normal labor at term followed, and one child had been born to the mother since without accident. In one case the pregnant uterus was removed for pain, on the theory, which the specimen proved correct, that the woman could neither miscarry nor carry the child to term. The third was operated because of mild sepsis due to retained fetus. Both recovered. Women with fibroids were peculiarly liable to infection following labor, miscarriage or menstrual flow. In several cases this danger was the chief indication for operation. Three cases were reported to support this opinion. Rapid growth of fibroids during pregnancy was believed to be more apparent than real. Partial or complete sterility was common in fibroid patients. But one case of malignant degeneration was seen. But one case died. This was due to the breaking-down of a large vaginal tumor, coexisting with a large abdominal tumor. Both were removed through the abdomen. Removal of the vaginal tumor per vaginam by morcellation, and an abdominal hysterectomy later would probably have saved the patient, who died from the effect of the sepsis from which she was suffering at the time of the operation, combined with the effect of the shock and loss of blood. One case of dermoid of the ovary with multiple fibroids was met with, one practically a pure myoma, and one fibroid of the ovary complicating fibroid of the uterus. Oophorectomy for fibroids was not a justifiable operation, as it neither stopped the hemorrhage nor the growth of the tumor. The ideal operation for myofibroma would leave the genital tract intact, or as nearly so as possible within reason. The tubes should always be removed when operation rendered pregnancy impossible. Healthy ovaries should be left, as should healthy cervices. Whether to operate through the vagina or through the abdomen might be determined before the operation began, but the details of the technic should be developed as the operation proceeded. In rare cases the elastic ligature was of service. Twice the bladder was cut, but was immediately repaired, and no harm resulted. One case had a hemorrhage from a split of the broad ligament, which occurred the night following the operation, as a result of the patient starting violently during a dream. No trouble from silk as ligatures was experienced, but because of the evidence against it, catgut was substituted as soon as he learned to sterilize the latter by heat. The death rate of abdominal operations need not be over two per cent., and vaginal operations involving the peritoneal cavity should not be above one per cent.

Unusual Dilatation of Cornual Blood Vessels, with Rupture Into the Uterine Cavity Hysterectomy.—Dr. Frank F. Simpson, of Pittsburg, Pa., reported this interesting case, and stated that apart from their association with neoplasms, vascular changes are not infrequently found when persistent bleeding occurs near the menopause. Arteriosclerosis is rather common; but aneurism, aneurismal varix and varicose veins occurring within the myometrium are rare. In this instance there was an excessive vascularity of the uterus, with sclerotic arteries and varicose veins. The sclerosis is found in its several forms, varying from a slight nodular infiltration of the intoma to complete obliteration. In addition we have the unusual spectacle of greatly dilated varicose veins which were the subject of repeated spontaneous rupture with repeated spontaneous closure. In the author's case there was a clinical picture which portrays the perils of this disease in its most serious form. In the well-marked cases that have come under his observation arteriosclerosis of the uterine vessels has been accompanied by menorrhagia and metrorrhagia, which began between the ages of thirty-eight and forty-five. They grew more and more pronounced, and yielded only to hysterectomy. In this case, however, the first symptom was a furious hemorrhage due to the rupture of a large varicose vein into the uterine cavity. Within two months three other hemorrhages burst upon her without warning, and each imperiled her life.

The gross pathological findings make it clear that without surgical intervention hemorrhage or infection would inevitably have closed the scene within a short while.

Primary Bowel Resection Versus Artificial Anus in the Treatment for Strangulated Hernia.—Dr. John Young Brown, of St. Louis, Mo., limited himself to a discussion of the surgery of those neglected cases in which at the time of operation the intestine found in the hernial sac is so damaged that the operator is forced to resort to one of two procedures—the establishment of an artificial anus, or a primary bowel resection. During the last eighteen months he has operated upon seven cases of strangulated hernia; four of these were males, three females. In four the hernia was of the inguinal variety, and in three of the femoral type. In all primary resection was done, followed by a radical operation at the hernial site. Of the seven cases, six recovered and one died. The oldest patient was seventy years, the youngest twenty. The duration of strangulation, longest fifty-seven hours, shortest nine hours. Amount of gut removed, largest four feet, smallest eight inches. Gut involved small bowel. In each case the condition of the small bowel, which was the part involved, was such as to leave no question concerning the

advisability of its removal. In all the resection was done through a supplemental abdominal incision, and the anastomosis was made with the Murphy button. The results obtained he attributes to the careful attention to certain points in the operative technic, a neglect of which he believes has been responsible for the high mortality invariably accompanying the surgical treatment of this condition.

A Study of the Etiology of Floating Kidney with Suggestions Changing the Operative Technic of Nephropexy.—The President, Dr. Howard W. Longyear, of Detroit, selected this as the title of his Presidential Address.

December 17, 1903, while operating on a young girl of sixteen years of age for appendical disease, the writer accidentally discovered that the right kidney, which was normally placed, could be easily pulled down and held in a firm position of complete prolapse by making traction on the cecum. This led to further observation on the etiology of displaced, loose or floating kidney, both on the cadaver and on the living subject, and afterward, as a result of those observations, to efforts to devise an operation that should have for its object the retention of the kidney in its normal position, as well as the anchoring of the ascending colon in such a manner as to remedy the prolapse of the cecum, which usually obtains in these cases, so that it should not exert further traction on the kidney and through it on the duodenum and renal vessels. The object of the address is to record the results, though unfinished, of these observations. The fact that the kidney in question could be pulled down and held firmly in this position by traction on the cecum and ascending colon was an indication that there exists a more firm and positive attachment of this viscus to the kidney than is generally believed.

After considering the literature of the subject, the writer naturally assumed that the kidney of his patient was pulled down by the adhesion of the peritoneal attachment, or mesentery of the colon to the fatty capsule of the kidney, and yet the firmness of the attachment was an apparent contraindication. With the object of testing this point, three cases of floating kidney were operated upon. The peritoneal cavity was entered through the usual incision in the loin, the redundant mesentery gathered up and attached to the incision of the fascia close to the twelfth rib at the upper angle of the wound. In the first case of extreme ptosis, having had Dietil's crises for several years, the ease with which the operation was performed, the amount of slack mesenteric tissue brought out and attached, and the immediate result which it had of entirely replacing the kidney so it could not be pushed down into the abdomen, were very encouraging.

In the second and third cases, however, in both of which the displacement was less pronounced, there was practically no mesentery such as was present in the first case, so that the peritoneal fixation seemed to promise less. However, while drawing out the peritoneal attachment of the bowel and making efforts to push the bowel down, away from the kidney, it was noticed in both cases that there was a cord-like structure passing downward from the lower pole of the kidney, which prevented the separation of the kidney and bowel. This was included with the peritoneal tissue and attached with it. Further investigation of the literature failed to enlighten the author as to the presence of any tendinous prolongation from the lower pole of the kidney, so further investigation was made on the cadaver. The dissection on the cadaver was described at length. The whole upper half of the abdominal parieties being incised and turned downward, the cecum, ascending colon, with hepatic flexure and kidney on the right side, and part of the descending colon, with splenic flexure and kidney on the left side, were removed, the dissection being made from below upwards and the organs removed together in such a manner as not to interfere with their normal attachments to each other. On turning the specimens over the posterior surface of bowel and kidney on each side showed a similar formation of tendinous attachment to each other. This was found to be formed by the gathering together of fine longitudinal fibers from the fibrous network which forms the framework of the fatty capsule. The tendinous ridge, formed by its attachment to the posterior surface of the ascending colon, could be followed easily between the peritoneal reflections down to the margin of the lower peritoneal attachment of the bowel and close to the junction of the ileum—in fact, near the point of the so-called origin in the female subject of the suspensory ligament of the ovary. A specimen illustrating the presence of this phrenocolic ligament was exhibited.

How much of an etiological factor is this embryological remnant in the production of displaced kidney? This ligamentous union of the kidney and bowel, the author claims, is the most important factor in the etiology of nephroptosis.

An operation which he has found the most easy way of accomplishment is the fixation of this nephrocolic ligament into the upper angle of the wound without severing it from the colon, and also fastening the redundant mesentery, if it be present, in the lower angle of the wound. The convergence of the framework of the fatty capsule into this ligament makes a structure of sufficient strength to be depended upon to hold the displaced organs, if securely attached to the aponeurotic tissue, preferably where it is thick near the twelfth rib.

Intestinal Obstruction.—Dr. Lewis C. Morris, of Birmingham, Ala., said that delay in operating for the relief of ileus is due to one of two things: (1) Assuming that the diagnosis has been made, the adoption of expectant treatment with the hope that it will relieve the condition, or that it will recover spontaneously; or, (2) the delay resulting from a failure to make a positive diagnosis. The author reported six cases of intestinal obstruction, and believes that if all such cases could be given the benefit of operation the mortality in this conditions would be completely revolutionized. The fact that some cases exist for days and are relieved by operation leads, in cases in which there is an element of doubt, sometimes to delay in surgical interference until the chances for recovery are materially lessened. Occasionally a positive differential diagnosis is very difficult, but the conditions from which a dfferentiation cannot be positively made are almost invariably equally as imperative in their demand for surgical intervention as would be the existence of an ileus.

Diagnosis.—Dr. John B. Deaver, of Philadelphia, endeavored to place the matter of laboratory diagnosis in its proper light, showing that it is after all only one form of diagnosis by pathognomonic symptoms. He tried also to make a plea for the more thorough education of medical students in the principles of physical diagnosis and in the knowledge of the natural history of surgical diseases; while at the

same time advocating a postponement of laboratory methods until the former have been completely mastered. He endeavored to show the real danger which, as it seems to him, exists of the modern surgeon degenerating into a mere mechanical appliance subject to the controlling mind and will of the laboratory diagnostician. Yet, while above all things discountenancing haste and carelessness in reaching conclusions, and the judicious resort to the therapeutic test of exploratory operations, he pointed out what seems to him the legitimate fields of the exploratory incision.

Appendicitis as a Factor in the Diagnosis and Treatment of Abdominal and Pelvic Tumors; Also Complicating Pregnancy.—Dr. Rufus B. Hall, of Cincinnati, Ohio, believes that the diagnosis of appendicitis, when associated with pelvic and abdominal tumors, or in the pregnant woman, has not received the attention on the part of the general profession that the subject deserves. He wishes to call attention more forcibly to the early recognition of the cardinal signs of appendicitis in these cases. It is the common supposition on the part of the general profession that when a patient known to have an abdominal or a pelvic tumor, is taken suddenly ill with pain in the abdomen, that there is something wrong with the tumor and the cardinal signs of appendicitis are ignored or overlooked. Dr. Hall then discussed the differential diagnosis of appendicitis complicating fibroid tumors of the uterus and ovarian tumors; differentiated diagnosis of appendicitis complicating tubal disease; differential diagnosis of appendicitis associated with pregnancy; the treatment of appendicitis complicating fibroid tumors and ovarian tumors and tubal disease; also the treatment of appendicitis associated with pregnancy.

Cæsarean Section.—Dr. Henry Schwarz, of St. Louis, Mo., reported the case of a child wife who was in labor sixty hours, with repeated attempts at forceps delivery by the family physician. Apparently she was not infected. Instead of a Porro, as is usual in such cases, he did the classical Cæsarean operation, which was followed by recovery of the mother. The baby was asphyxiated; membranes and amniotic fluid yellowish green. His assistant worked over the baby an hour at artificial respiration before spontaneous breathing was established. Pressure marks on the scalp showed locking of the head between the promontory and symphysis; necrotic tissue dropped out a few days afterwards, and baby recovered.

Pregnancy Associated with Diabetes.—Dr. Magnus A. Tate, of Cincinnati, Ohio, mentioned the reports of numerous investigators, calling attention to sugar in the urine of pregnant women. He collected all cases that could be found in medical literature where pregnancy was complicated by diabetes. He reported an additional case, and presented a study of these tabulated cases as to their frequency, results, mortality and other similar data.

Cysts of the Mesentery.—Dr. Orange G. Pfaff, of Indianapolis, Ind., said that these growths are comparatively rare; their diagnosis is difficult, if not impossible; their pathology is not fully and clearly understood, but most of them, if not all, are of probable embryonal origin.

Abdominal Pregnancy Persisting Beyond the Normal Period of Gestation with Report of Cases.—Dr. Charles A. L. Reed, Cincinnati, Ohio, read a paper which was based, first upon three cases that occurred in his practice, as follows: (1) Extrauterine pregnancy with extraperitoneal development of gestation; operated upon fifteen months after conception by marsupialization, and terminating in recovery. (2) Exerauterine pregnancy with retroperitoneal development of gestation, operated upon by marsupialization eleven months after conception and ending in recovery. (3) Extrauterine pregnancy with development of gestation within the anterior abdominal wall, complicated with uterine fibroids, operated upon four years and nine months after conception, ending in recovery. The conclusion reached by the author was that the placenta presents the chief factor in operation upon these cases. In instances in which the fetus is already dead, and in which there are no symptoms of sepsis demanding immediate operation, a delay for a few weeks is desirable, as thereby the vascularity of the placenta will be greatly reduced, if not entirely destroyed. One case indicated that it might persist to an embarrassing degree after six weeks. The operation by marsupialization is recommended, as it avoids hemorrhage, facilitates perfect drainage, and places all conditions under control. The importance of the yeast ferment in eliminating attached fragments of placental detritus was emphasized.

Officers.—The following officers were elected: President, Dr. John Young Brown, St. Louis, Mo.; First Vice-President, Dr. James N. West, New York; Second Vice-President, Dr. Frank F. Simpson, Pittsburg, Pa.; Secretary, Dr. William Warren Potter, Buffalo, N. Y., re-elected; Treasurer Dr. X O. Werder, Pittsburg, Pa., re-elected; Members of Council Drs. Robert T. Morris, New York, and Howard W. Longyear, Detroit, Mich.

The next place of meeting will be selected by the Council.

AMERICAN CLIMATOLOGICAL ASSOCIATION.

Twenty-second Annual Meeting, held at Detroit, Mich., June 29 and 30, 1905.

Presidential Address.—This was read by Dr. W. F. R. Phillips. It took up the rôle of climate as modifying the animal and vegetable world; the influence on art, architecture, literature, philosophy and religion. The influence of climate on the course of phthisis was considered and the varying attitudes of the profession toward different climates. Definitions of climate were given and show a great want of harmony in what is understood to be embraced. It is a composite, and to study it requires a division into its elements and an investigation of their separate physiologic results. The laboratory must be the means by which climate as a therapeutic agent must advance. Dr. Phillips advocated climatological laboratories at sea-level and on mountains as the best method of solving the perplexing problems in which we are guided so largely by empiricism.

Southern California Health Resorts.—Gen. C. H. Alden, U.S.A., retired, contributed a paper on "Some Southern California Health Resorts, 1904-5." This report is founded on observations during the last eighteen months. The climate of Southern California is equable in its limited range of temperature and in its freedom from severe storms, but there is a sudden and marked fall of temperature at sunset which invalids and others must guard against. There is a great difference between successive seasons in the amount of rainfall and of sunshine, and, consequently, of temperature. The rainfall in 1904-5 was nearly three times what it was in 1903-4, and nearly four times that of 1901-2. The

facts are always suppressed by local boomers who would have the public believe that the region is one of cloudless skies the year round. The climate of Southern California is not a dry one, as some suppose. The humidity lessens as one goes from the coast inland, but the fogs, which in the absence of much rain, are a large factor in sustaining vegetation, penetrate many miles from the sea and add to the humidity. The fact that the humidity is not favorable for pulmonary tuberculosis which is at all advanced is evidently not appreciated as it should be. The interior towns are unpleasantly hot in summer; coolness can be secured only by going to the sea-shore which is too damp for many invalids, or to the mountains where there are scarcely any accommodations suitable for the sick. There is a hostile attitude toward tuberculous patients in hotels and boarding-houses; the best resorts will not admit them and so advertise. They are not now dependent on consumptives as formerly. Patients of this class, if they come to Southern California at all, would do much better if treated in sanatoria. They need daily supervision and cannot be trusted to take care of themselves. They generally make light of their affliction or even conceal it; they indulge in sight-seeing, in amusements and social functions and exhaust their strength. They take up with quacks in many instances. The principal resorts in Southern California were characterized, and data were given as to hygiene and vital statistics. Favorable mention was made of Redlands in winter and the foot-hills of the coast range near Pasadena or Santa Barbara in summer.

The Laurentians.—Dr. A. D. Blackader, of Montreal, read a paper on the "Climatology of the Laurentians." This region is situated north of Montreal and forms a plateau extending from Labrador to Lake Superior. It is made up of very ancient crystalline rocks; it is undulatory, the depressions are covered with detritus or drift, with here and there flats of light sandy soil. The flora and fauna were described and meteorological data given. Ste. Agathe is one of its best-known districts. It is cold in winter, but not subject to high winds. From December to March the clear days average 14, the partly cloudy 10, the cloudy 10 per month. The winter air is dry, but exact records over a long period are wanting. It was claimed to be an ideal place for all those showing any tendency to circulatory disturbance or throat complications, bronchitis or asthma.

Southern Florida.—Dr. E. L. Shurly, of Detroit, read a paper on "The Climate of Southern Florida for Chronic Cardiac and Vascular Diseases." He laid great stress on the regulation of the action of the skin and intestines in combating renal and cardiac diseases. He prefers the Southern climates to the usual measures such as the use of mineral waters, hydrotherapy or drugs. He excludes from consideration certain cases of valvular disease of the heart of recent origin or incipient aneurisms which appear to be more particularly relieved by a residence at an altitude, but for cases showing more than full compensatory hypertrophy, with more or less condensation or loss of elasticity of the arterial intima or walls, whether accompanied by severe or moderate renal lesion, great relief or a restorative to a condition of ease or usefulness will often follow a residence in subtropical regions. Dr. Shurly mentioned Palm Beach and Key West and Nassau favorably. The diet in these cases should be non-nitrogenous and non-stimulating.

North Augusta, South Carolina, as a Winter Resort.—Dr. Thos. D. Coleman, of Augusta, Ga., read this paper. The advantages of this suburb of Augusta were detailed. It has an altitude of about 600 feet and is 100 miles from the Atlantic Ocean and 16 miles from Aiken, S. C. It is on sandy hills about 400 feet above the city of Augusta. The accommodations are first class.

Influence of Climate on Gout.—Dr. C. C. Ransom, of New York, contributed a paper on "The Influence of Climate upon Gout." The geographical distribution of gout was considered and it was shown that where malt liquors and wines are largely used gout is much more common than in countries like Scotland, Ireland and Scandinavia, where spirits are more popular. It is very common, according to Dr. Ransom, in America The Hindoos of India are immune, but it is said to affect the Mohammedans notwithstanding that their religion prohibits the use of alcohol. The effect of climate is subsidiary to other factors in the continuation of the disease. Dr. Ransom does not believe that the atmosphere of the sea-shore has any unfavorable influence on gout, as he repudiates the notion that the humid atmosphere, by retarding elimination and thus favoring the retention of uric acid, will increase gout. Dr Ransom lays more stress on diet.

Human Blood Pressure and Pulse as Affected by Altitude.—Dr. Charles Fox Gardiner and Dr. Henry W. Hoagland, of Colorado Springs, read this paper. The authors used healthy college students from Colorado College and had the advantages of the new scientific laboratory and the professors of physics and biology. Five miles distant by electric railway was the summit of Pike's Peak, 14,130 feet. A normal pressure for each healthy individual was obtained for 22 college men at 6,000 feet altitude. The average as determined by the Riva Rocci and Janeway instruments during some weeks was 126 mm. Hg. and pulse rate 80. The men were taken by special train to Pike's Peak, 14,130 feet, and on arrival were taken to a room in the hotel. All excitement and excretion was avoided. They were then tested using the same technic as employed in the laboratory at 6,000 feet. Results showed an average pulse of 86 and blood pressure 121, again in pulse rate of 5 and a lessened blood pressure of 5 mm. After remaining three-and-a-half hours at this altitude they were again examined. The pulse rate had risen to 99 and the pressure had fallen to 118 mm. Some exercise, such as walking, had, however, been taken by all the individuals of this group during the interim. A few days after returning from this trip nothing unusual was noted. In other series of experiments it was found that as a rule blood pressure in men and women is slightly lower at 6,000 feet than at sea level after a residence of one year. Prolonged residence at this altitude, in 60 men who had lived twenty-five years at Colorado Springs, the measurements showed at least no excess of pressure. It was found that the more rapid the pulse the lower the blood pressure; when the pulse rate was but little affected by an altitude of 14,000 feet the blood pressure was also more constant; that cases of mountain sickness were accompanied by a fall in blood pressure and a rapid pulse. In any case where the blood tension is low on account of disease a removal to a higher altitude would be likely to aggravate it. It is highly probable that the right side of the heart and venous system play a more important part in the phenomena of altitude effects than we can at present verify.

Dr. Henry Sewall, of Denver, said that although it is laid down in the books that nephritis is influenced unfavorably by high altitude it is not altogether true. Dr. Sewall has had experience with cases of this class that do remarkably well at 5,000 to 6,000 feet on the slopes of the Rocky Mountains. Others do badly. He

quoted the case of a lady with tuberculosis of the lungs and larynx. She held her own in Denver, married and went to Honolulu. There her throat was greatly improved, but her lungs were worse. On her return to Denver her nephritis became aggravated and compelled her return to Honolulu. Dr. Sewall holds that those conditions of the kidneys in which increased venous blood pressure is deleterious are made worse in high altitudes.

Dr. Babcock, of Chicago, said that the difference in blood pressure is so slight, that on that fact alone he hardly saw any explanation of benefit or the reverse that might accrue. We cannot lose sight of the increased depth and vigor of respiration in its effect on patients. So that there are certain problems connected with it that ought to be worked out. Theoretically a case of compensated aortic regurgitation ought to be favorably affected, since any condition which would lessen peripheral resistance as could be done by decreased arterial tension ought to have a favorable effect.

Impalpable Sputum.—Dr. Norman Bridge, of Los Angeles, read a paper on "Impalpable Sputum as a Usually Overlooked Danger in Tuberculosis." He stated that direct infection rather than heredity was responsible for the disease. The infection invades first the lymphatic nodes of the throat, neck, chest or abdomen, where it may remain latent for months or years. Dr. Bridge believes with von Behring that the disease in the lungs is secondary to lymphatic infection and does not agree with him in ascribing the original infection so largely to milk from tuberculous cattle. Dr. Bridge called attention to the tangible sputum which is known and against which war is waged and which is so carefully destroyed; and to the intangible, impalpable sputum ejected by the consumptive in an explosive cough constituting more formidable because neglected and unthought of.

Sputum from Ambulant Cases.—Dr. De Lancey Rochester, of Buffalo, read a paper entitled "The Main Factor in the Spread of Tuberculosis—Sputum from the Ambulant Cases. What are We going to do about it?" He said patients who are unwilling to take the necessary precautions and those who by ignorance cannot be made to conform to instructions against indiscriminate spitting should be removed, by force, if necessary, to a proper institution, and he retained there under proper supervision until death or cure occurs. New York is the only city, as far as the author knows, in the world where this power is held and exercised by the Board of Health. In their experience there is rarely any real difficulty in the management of these cases, if the accommodations which are provided and the food and care given are of a superior character. The law is as follows: "Said Board may remove or cause to be removed to proper place any person sick with any contagious, pestilential or infectious disease; shall have exclusive charge or control of the hospital," *etc.* According to the General Health Officer, Dr. Hermann Biggs, the death-rate has declined 40 per cent. in twenty-five years. Dr. Rochester said that unless the ignorant and vicious spitters are taken care of in this way, consumption can never be got rid of. If, however, these measures are carried out he firmly believes consumption can be rid of in a generation. As Cornet has said: "The consumptive in himself is almost harmless and only becomes harmful through bad habits." Because of the intangibility of the poison as well as the natural skepticism of lay people and doctors such efforts will be difficult. To say that every hour, day and night the patient must remember to hold a shield in the shape of a cloth or paper before his face when he coughs, and then destroy the shield, is to impose a large tax on his attention and faithfulness; probably few patients are equal to such a task. With the best of intentions they forget and grow careless. Beards and moustaches should be removed; clothes and bed linen sterilized and sunned, and if sunlight is not to be had they can be hung in a formalin closet. In the latter case the clothes must be aired before they are used again. Carbolic solutions were recommended for floors and furniture. The popular chloride solutions are probably not very useful in this connection.

Dr. E. L. Shurly, of Detroit, Mich., said it might be a very desirable thing to use coercion for the isolation of early or incipient cases of pulmonary consumption, but he doubts whether that could be done in the western States, where the spirit of independence and individual liberty still exists, perhaps stronger than in the State of New York or other eastern States. The question came up in a way, a few years ago, in this State, and Dr. Shurly was unfortunately brought before the bar of the courts here for not reporting a case of pulmonary consumption. The question was pretty well aired by the attorney on both sides, and a great deal of testimony taken as to the communicability of the disease or diseases and the justice of the regulation of the State Board of Health classifying pulmonary tuberculosis with the pestilential diseases, such as diphtheria, variola, cholera, etc. The contention Dr. Shurly's attorneys made at these various times prevailed. Dr. Shurly concedes that such a thing would be desirable in the interests of the family and community as suggested, under certain circumstances, but before such measures are carried out generally, it seems to him that the State should first guarantee to the people honest and competent practitioners of medicine. In most of the States the law regulating medical practice is new, while ignorant faddists are given special privileges. He thinks in New York State the law is older and better than in Michigan, which is only four years old. There are probably not less than two thousand people practising medicine in the State of Michigan who scarcely know the difference between mumps and consumption. Now, under the diagnosis made by these persons a great deal of harm would come from coercive measures advocated. It seems to him the State must first, before adopting coercive measures of that sort, guarantee to the people competent and honest practitioners, and, as the paper suggests, the places to which they are removed must be well provided with good food and other facilities. But to deprive any individual, even a sick individual, of liberty in this country is a very serious step, even though there may be some compensation for it, and in the western States he does not believe such a thing is practicable at the present time. Indeed, the separation of a family in that way cannot be carried out easily.

The statistics of New York may be correct, but he knows the statistics in Michigan are not worth a snap, because the people, under the fear of trouble about their life or benefit insurance, and things of the sort, will hide their complaints, aided frequently by practitioners. For instance, Michigan has a State statute requiring a special burial permit, or certificate of the death of a patient of tuberculosis before removal from the State; now, everybody knows how these death certificates are made out, as pneumonia, whooping-cough, etc., so as to avoid the ordinance. That is done right along. It seems to Dr. Shurly that the medical profession ought to still further improve the laws regulating the practice of medicine, and be able to go to the people with definite data—facts—establishing the general communi-

cability of pulmonary phthisis before radically advocating coercive measures for the isolation of patients.

Dr. Henry Sewall, of Denver, Col., said he was very much disappointed in these discussions. He cannot help but feel that they have represented very little medical progress in the last fifteen years. It seemed to him that looking at this thing from a very practical point of view the curse of our country is illustrated in the enthronement of our notion of individual liberty, which practically amounts to liberty to do harm to your neighbor and not to do good to yourself. The health boards are continually ignored, and it is only through the health boards that we can meet the public. There is no direction in which this society can do more good than to work through the health boards, and to try to see to it that the health boards are constituted as they should be. He thinks the worst enemies of the health boards are the good, honorable well-meaning doctors who call themselves conservatives. They are represented right here in this association, and he believes they have done a lot of harm. A man who does things is bound to make mistakes; but for God's sake, don't stop everything because a man in going ahead is bound to go on the wrong track occasionally. Take an interest in every public health work, and help in that direction. He can see perfectly well how the registration of tuberculosis may be of enormous avail. The law does not yet authorize many things which ought to be done, but Dr. Sewall believes the community is rapidly approaching the point when they will allow the profession more authority—more power. He thinks it is quite a matter of dispute as to whether the germ of tuberculosis may not have to go through some intermediate stage. It certainly does seem to be required to be confined in the dark, and in ill-ventilated spaces. But at the same time there can be no doubt but isolation is a wise thing, to control the sputum that is coughed up by the patient, palpable or impalpable. Our veterinary friends have set a good example in that respect. Good work has been done in Denver with tuberculous cattle simply by adopting intelligent methods of isolation, taking the cattle that were valuable for breeding purposes and allowing them to be used for that purpose; taking the calves and isolating them, putting them out by themselves, not destroying anything except in the advanced cases of the disease; they have thus practically stamped out tuberculosis inside of fifteen years. And Dr. Sewall would be very sorry to admit that what can be done for cattle cannot be done for human beings. As far as the feeling of western independence of the individual is concerned, he has had some little experience on both coasts of this country, and has no hesitation in saying that while there is, in a sense, more individuality in the West, there is also a much higher intelligence and so much better development of what he thinks may be called the common consciousness in western communities that they are more ready to take up with these things, when seen to be necessary, than they are in the East, and that there should be less difficulty in enforcing a rule of this description in an intelligent western community than in the eastern. The death-rate of tuberculosis has decreased in Denver about 35 per cent. in the last twenty years, but the pneumonia death-rate has increased at a little more rapid ratio than the tuberculosis death-rate has declined, and Dr. Sewall does not want to impute any unnecessary ignorance to anyone, but it is becoming a very unpopular thing to have a death certificate signed as having been due to tuberculosis. Many of these patients are members of small industrial and insurance organizations, and if it had been reported that their death was due to tuberculosis the company would refuse to pay on the ground they had the disease before they were insured. There has been an unconscious influence in that direction, and many of the so-called cases of pneumonia are really tuberculosis. By all means teach the public as far as possible, and isolate all necessary cases.

Dr. Roland G. Curtin, of Philadelphia, Pa., said the subject of the contagion or infection of tuberculosis, if the term is permissible at the present time, is yet a disputable one; there is one class of cases which is in the direct trend of those cases mentioned by Dr. Glasgow. They are the supposed to be cured cases of pulmonary tuberculosis. I think they are the most prolific cause of infection, for the very reason that they are supposed to be entirely well; and they are not so. I had a patient, a young man who had married three wives, and he did not live with either one of them two years; they all died. One in one year, one in a little over a year, and one in a little less than two years. This young man was deaf in one ear, and upon examination I found he had a tuberculous disease of the internal ear, and I suppose he communicated it to his wife through his mouth. I said to this young man, "Are you going to get married again?" and he answered, "The truth is, Doctor, the women are afraid of me, otherwise I would." This case was followed by a man who also had lost three wives, and it was found upon inquiry that he had a cough in early life, and he always had some little cough after that. Upon examination of his sputum bacilli were found, and he probably poisoned his wives in exactly the same way. Since that time I have been particular to inquire about the previous history and examine the lungs carefully of all patients coming to me who have lost two or more wives, and in these cases almost always there is a history of chronic cough, and evidence upon an examination of the lungs of previously existing organic disease. Patients of this class go around spitting anywhere and everywhere during their whole lives, and these are the cases you cannot control by any means suggested. And it seems to me this class of cases is more prolific in spreading the disease and more likely to spread disease than any other class.

Dr. Babcock said that a few weeks ago he saw a Lithuanian priest in Chicago, a very intelligent young man, who had pulmonary tuberculosis. The doctor questioned him with the utmost particularity as to his family history, his previous diseases, and could obtain no clew to the source of his infection. And finally he said to him, "Did you ever live in a room with a consumptive, or did you ever occupy a room in which a person with a chronic case of consumption had lived?" He said, "Yes, Doctor, I lived for two years in a room in which a young man had died of consumption." Dr. Babcock said, "Was he careful with his expectoration?" He said, "No, he spit anywhere he chose." Dr. Babcock said, "Was that room ever thoroughly cleaned after his death?" He said, "No, Doctor; you know that that class of people don't clean their rooms." Now, Dr. Babcock said, one swallow does not prove a summer, and perhaps those who do not believe in direct infection may maintain that that young man

did not get tuberculosis from that room. But Dr. Babcock believes that in the light of the investigations which have been carried on, that that young priest, who was healthy, who had no family taint, who had had no depressing diseases, obtained his infection from living in that room which was infected with tubercle bacilli. Furthermore, the Doctor believes it is shown beyond any question that in families with tuberculosis the disease is communicated as frequently from the children to the parents, as from the parents to the children. In his argument against inherited tuberculosis Cornet gives the tables of cases where the parents are free from tuberculosis at the time of marriage, and free from tuberculosis until after a child had contracted it. And anyone who has read Cornet's work, Dr. Babcock thinks, will bear him out in his conclusion that the disease is communicable and communicated in these instances from the children to the parents. If a single case or group of cases goes to prove anything that the disease is communicable from one patient to another, then I say we are justified in all measures calculated to limit infection. It is only a question of just how far we shall go in order not to antagonize the public too strongly at first. And the Doctor believes that if this question of infection were put to a vote to-day in this Association you would find that the majority, if not all the men, believe it is infectious and it is communicable from one person to another through the medium of something, say the sputum, just as much as smallpox is communicable from one individual to another.

Dr. Norman Bridge said some of the members who have discussed this paper seem to have imagined the possibility that the officers of the law might try to segregate large numbers of invalids in the community; that there is a general belief that in matters of this sort the profession ought to go slow, not to terrify the public, not to scare the people. Dr. Bridge does not know just how Dr. Rochester feels about it, as to whether, if he had his own way he would have a great number of people gathered in by the health officers and segregated, but it seems to him (Dr. Bridge) that here is a truth that should be considered, the value, for the popular understanding of this disease, of having occasionally a man arrested and taught by the courts, as well as by the officers, the force of law. One man's arrest for promiscuous spitting, spitting on the sidewalk, or in the street car, and fining will do more toward educating the public to the dangers of tuberculosis than some of our discussions and a great deal of our literature. If occasionally a known tuberculous patient, a patient known to be a consumptive, were arrested because he is careless in his expectoration and were sent to a hospital or fined, or put under supervision, it would do a vast deal of good. None of us will live long enough to see a great number of patients reached by the heavy hand of the law in that way. But an occasional case of that sort, the Doctor believes, will help mightily toward the intelligent understanding, not only of the force of the law, but of the value of these preventive measures toward the spread of tuberculosis.

"Inspection of the Eastern State Penitentiary of Pennsylvania with Special Reference to Tuberculosis."—Dr. Guy Hinsdale made this report. This prison was built in 1827 and has been famous for the system of solitary confinement. There were 1,010 convicts at the time of the inspection two years ago, and the death-rate from tuberculosis had been large. Out of 475 deaths from all causes during the previous 25 years, over 60 per cent. had been from pulmonary tuberculosis. There were about forty cases of pulmonary and glandular tuberculosis at the time the visits were made. The pulmonary cases were segregated in the hospital department and afforded more air and liberty than others. The cases of adenitis were not segregated, but put to work outisde the cells. The ordinary cell has about 1,100 cubic feet of contents, and has a window in the roof 24 x 24 inches. Ventilation is also permitted through the door into the corridor, which, during later years, has been left ajar six inches and secured by chain and rod. There are doors opening into the little yards attached to the cells, and these doors are opened half an hour daily for men and three hours for women. The plumbing and drainage is most primitive, and is for the most part without traps in the cells. About 20 per cent. of the convicts occupy cells in the upper tier. Through the efforts of the prison physician, Dr. W. W. Leach, and one of the inspectors, Dr. W. D. Robinson, who had invited Dr. Hinsdale to make the report, improved methods were carried out for the treatment of the tuberculous cases, and attempts were made by rigorous disinfection to eradicate the disease from cells which were probably infected. Very satisfactory results were obtained during the past two years, especially in reference to the number of cases originating in the prison. Dr. Hinsdale reviewed the excellent work done at Clinton Prison at Dannemora, N. Y., by Dr. Ransom. It is the practice of the New York State authorities to send tuberculous convicts from other prisons to Dannemora, which is situated on the eastern border of the Adirondack Mountains. The lives of many prisoners have thus been saved.

Dr. John Winters Brannan, of New York, contributed a paper on "The Sea Air Treatment of the Bones and Glands in Children." (See a subsequent issue of the MEDICAL NEWS.)

Permanency of Results.—Dr. F. M. Pottenger, of Los Angeles and Monrovia, Cal., read a paper on The Permanency of Results in Pulmonary Tuberculosis: The After-History of Twenty-seven Cases Treated by the Combined Hygienic-Dietetic-Open-air and Tuberculin Treatment. German insurance companies which maintain sanatoria have issued statistics which show that when treatment is provided for only two or three months and the patients returned to work permanent results were not very satisfactory, as they soon broke down again. A much longer period is required for an economic cure. The report of Dr. Pottenger concerned 27 cases which had been discharged as far back as six years or as recently as twenty-six months. Of these cases twelve were classed as in the first stage, and all were apparently cured or had their disease arrested and remain cured to-day. Of those classed as in the second stage, six were apparently cured or had their disease arrested and remain cured to-day; while of the third stage cases, two had their disease arrested and remain cured. Thus twenty have been cured. Of the seven cases discharged as improved, six are dead. In no instance was there a relapse in any of the twenty discharged as cured.

Hemoptysis in Heart Disease.—Dr. Roland G. Curtin, of Philadelphia, read a paper on "The Significance of Hemoptysis in Heart Disease." It was Dr. Curtin's twenty-first annual paper before the

Association. Bleeding from the lung structure proper *i.e.*, the air vesicles, may be caused by a stasis of the blood, which may be due to the constriction of an orifice in the heart, thus retarding the blood in the lungs; or to a partial cessation of the action of the heart, so as to produce a stoppage of blood in the lungs, thereby causing a congestion and an escape of blood through the lining membrane of the air vesicles. The usual causes are mitral constriction, rupture of degenerated blood-vessels and, less frequently, slowly rupturing aneurysm of the aorta. The diagnosis of the origin of the blood was given. Mistakes in this respect lead sometimes to a diagnosis of lung disease. Examples were given. Dr. Curtin has seen cases of hemoptysis apparently caused by administering nitroglycerin and by the prolonged use of potassium iodide. The blood in all cases should be carefully examined. If the heart disease is acute and the blood is pure the prognosis is bad. If the blood is bright red and quite profuse the prognosis is much more favorable than when dark or purple, showing it to be stale from a slow oozing. If the bleeding is caused by a condition of the blood engrafted upon a previously existing heart disease, the prognosis is not so serious. Death is seldom, if ever, produced by a profuse hemorrhage from this cause alone.

Respiratory Movements of the Bronchial Tubes.—Dr. E. Fletcher Ingals, of Chicago, read this paper. These were first noticed by Dr. Ingals while doing bronchoscopy in a child two years old, and later in a boy thirteen. In a patient, an adult who had had asthma all her life, having had two or three attacks every night for years, the vesicular murmur was not more than one-sixth or one-fourth as loud as normal in either lung, although there were no râles or no signs of emphysema or other disease of the lungs; and the question arose whether the feebleness after vesicular murmur was not due to deficient innervation of the bronchial muscles, and whether the attacks of asthma were not due to irritability resulting in excessive paroxysmal action of the contractile muscles. Dr. Ingals has observed that in inspiration the diameter of the tube was sometimes more than twice as great as in expiration. The investigations of Einthoven, Dixon and Brodie were quoted.

Anthracosis.—Dr. Henry Sewall, of Denver, reported an "Extraordinary Case of Anthracosis Simulating Thoracic Aneurism." The patient was an adult, aged forty-six, who had a systolic *bruit* confined to an area represented by the lower half of the right scapula when the shoulders were thrown back. He had worked when twenty years old for a year in the coal regions of Pennsylvania. His breathing became progressively difficult, and there was evidence of a moderate degree of consolidation at the right apex. Radioscopic examination showed a rather dense shadow projecting into the right lung, but its true character was not suspected. Rest in bed and iodides for six months did not improve him. His sputum showed a few tubercle bacilli, and he coughed up some light blood, and had severe pains about the heart. The patient died shortly afterward, and at the autopsy the right ventricle was found dilated and rather hypertrophied. The heart valves were all normal and competent. No sign of aneurism. At the root of the right lung a hard solid, ovoidal mass, 4 x 3¼ x 2½ inches, black and gristly, was found. Analysis showed it to be coal dust.

Immobilization of One-half of the Thorax.—Dr. Charles Denison, of Denver, Col., read this paper. He showed a process of applying bandages for preparing and applying *traction plasters*, to arrest pulmonary hemorrhages, to relieve pleurisies, to contract lung excavations, and to adjust rib fractures.

Election of Officers.—At its business session the Association elected the following officers: President, Dr. E. L. Shurly, of Detroit; vice-presidents, Dr. A. D. Blackader, of Montreal, and Dr. Henry Sewall, of Denver; secretary and treasurer, Dr. Guy Hinsdale, of Hot Springs, Va.; councillor, Dr. W. F. R. Phillips, of Washington, D. C. It was decided to hold the next meeting at Atlantic City in May, 1906.

COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Stated Meeting, held June 7, 1905.

The President, Arthur V. Meigs, M.D., in the Chair.

Three Cases of Cerebrospinal Meningitis, Probably Due to the Pneumococcus.—Dr. Robert N. Willson, Jr., reported these cases because they demonstrated, in a manner apparently beyond cavil, that the general teaching of the fatality of meningitis caused by the pneumococcus is not always borne out by experience; and, because from the similarity of their clinical pictures, the cases offered a method of discriminating between this and other spinal inflammations. The cases were all treated by lumbar puncture and then expectantly. Case 2 was operated upon twice. In all of the cases there was extremely high tension, and through a rather large canula the fluid spurted out some distance from the spinal column. In every case there was immediate relief to some extent. In Case 2 ptosis disappeared from the eyelids, headache disappeared, and convalescence seemed to date from that point. A week later there was entire return of the symptom complex, and lumbar puncture again had the same effect. In all three cases there was an enormous amount of cerebrospinal fluid. The result of the cases—recovery in all three—was contrasted with the statement found in Osler, that pneumococcus meningitis is fatal, and with Dr. J. C. Wilson's last article, in which it is stated that the pneumococcus form is the most fatal of all forms of spinal meningitis. In all three of the cases it was proved as nearly as possible that the pneumococci were present.

Dr. F. P. Henry thought it extraordinary that the complication is not more prominent in cases of pneumonia, considering that the pneumococcus has been found in cases of pneumonia and traced from the lung to the nasal passages. In cases of pneumonia in children, he has found difficulty in the differential diagnosis of meningitis and pneumonia. He thought Dr. Willson's cases seemed to substantiate his view that pneumococcus meningitis was not so fatal as said to be by the authorities quoted.

Dr. J. Allison Scott called attention to the fact that practically every symptom and sign of meningitis could be found in various affections and yet the meningitis be not present. He thought the diagnosis in the first case reported not altogether secure, because of the bacteriological results, and that the second case was not proved to be one of meningitis, because in almost every case acute leucocytosis is a characteristic of the disease. In

the pneumococcic cases studied recently at the Pennsylvania Hospital, he said that the cerebrospinal fluid was usually somewhat turbid, and that the pneumococcus was demonstrated without difficulty and differentiated from other organisms by culture. He has had two such cases under his care; one fatal in twenty-four hours, and the second within a few weeks. The second case was the result of ear disease without the presence of pneumonia. He was disinclined to a diagnosis of meningitis until the condition is proven by all known means. In a large percentage of cases he believed that the pneumococcus can be demonstrated in the circulating blood, and apparently derived from some other source than the pulmonary tissue.

Dr. Willson, in closing, referred to the statement of one authority, that there is a constant intercommunication between the intraspinal circulation and the blood circulation. He has found the subject interesting in connection with his experiments with reference to the pressure of the fluid. He felt that the most interesting case was that of the boy in which undoubtedly the pneumococci were found. The point in question was whether meningitis was the result of the pneumococci found in the cerebrospinal fluid. In a recent case of dislocation of one of the vertebræ the staphylococci were found. In this case the meningitis was considered to be due to internal traumatism.

A Case of Bacillus Pyocyaneus Septicemia After Surgical Operation.—Dr. John B. Roberts reported a case of infection with the blue pus bacillus occurring in a young colored girl of nine years who had been subjected to a plastic operation upon the arm and shoulder for cicatricial deformity resulting from a burn. The patient did well after the first plastic operation, but, just before a second one was undertaken, had tonsillitis and high temperature. This lasted for a few days and recovery apparently took place. After the second operation she developed symptoms of bronchitis, which was followed by sloughing of the axillary flap, the occurrence of blue pus and severe general symptoms. Investigation showed that blue pus had been observed also during convalescence from the first operation. The patient gradually went down hill with grave secondary anemia, a toxic nephritis which gave rise to blood casts as well as hyaline and granular casts, and finally died. The cause of the grave general symptoms was not recognized, but was supposed to be due to some form of infection of the wound, because typhoid fever, malaria and other ordinary conditions were considered and found to be untenable as diagnoses. Some time after the patient's death, it was found that a number of cases of blue pus had occurred in the hospital, and in one of them bacteriological study showed a pure culture of the *Bacillus pyocyaneus*. The clinical diagnosis of pyocyaneus septicemia was therefore made by Dr. Roberts only after the child's death. A discussion of the symptomatology of the disease and reference to recorded cases concluded the paper. The case was reported, because general septicemia of this origin in the human subject is quite rare, or at least, if more common, is seldom recognized by surgeons.

Dr. J. Allison Scott referred to a case which indicated that not all cases of this infection were necessarily fatal. The case was one of extrauterine pregnancy practically exsanguinated. After transfusion in all parts of the body, especially underneath the breasts, she developed a severe infection, which proved to be pyocyaneus in origin. There was great damage to the immediate neighborhood of the salt solution injection, causing necrosis and sloughing. The difficulty, however, was entirely local, and the woman recovered.

BOOK REVIEWS.

Lectures on Diseases of Children. By Robert Hutchinson, M.D., F.R.C.P., Assistant Physcian to the London Hospital and to the Hospital for Sick Children, Great Ormond Street. Edward Arnold, London.

Those who have enjoyed the author's previous work on "Food and the Principles of Dietetics," will know what we mean when we say that this work is written in the same highly agreeable style. It is in the form of lectures which were delivered at the London Hospital, and is not quite an exhaustive treatise on childhood maladies. There are but few of us who will not glean from its pages many valuable suggestions. In rather a conversational way the author goes on to speak of colic and vomiting and diarrhea, and many of the so-called "little" complaints, that the ordinary textbook passes by in a most unsatisfactory manner. Then he wanders over the fields of wasting diseases, nervous diseases, blood diseases, etc. One lecture is devoted to some of the common symptoms of children's disease and their significance, and another to certain medical aspects of adenoid vegetations. The pictures are exceptionally illustrative, and particularly striking is the one of splenic anemia in twins. The author finds that adenoids are responsible for a great many of the ills that infants' flesh is heir to: snuffling, epistaxis, laryngeal stridor, wasting from the difficulty in swallowing milk, bronchitis, asthma, dyspepsia, mental dulness, night terrors, nocturnal incontinence of urine, headache, torticollis, etc. The lectures are eminently practical and show the author's intimate knowledge of children and their ills.

The American Year-Book of Medicine and Surgery for 1905. A Yearly Digest of Scientific Progress and Authoritative Opinion in all branches of Medicine and Surgery, drawn from journals, monographs, and text-books of the leading American and Foreign authors and investigators. Arranged, with critical editorial comments, by eminent American specialists, under the editorial charge of George M. Gould, A.M., M.D. In two volumes. Volume I, including General Medicine; Volume II, General Surgery. Two octavos of about 700 pages each, fully illustrated. W. B. Saunders & Company, Philadelphia and London.

Dr. Gould's year-book continues to grow in favor from year to year, and there is no doubt at all that the abstracting for it is conducted with a serious conscientiousness that sets it far above the plane of the mere routine glossing of medical literature. The best evidence of this, of course, is the prominent character of the contributors to the volume, among whom are found some of the most progressive of the younger medical men. We miss this year in the volume on Medicine the numerous illustrations that have usually been provided. There are some illustrations, but there might have been more with decided advantage. An excellent feature of this work is the very complete index which accompanies it. This is doubtless due to the experienced editors.

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